

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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LONDON, SATURDAY, DECEMBER 27, 1873.

WITH SUPPLEMENT. PRICE FIVEPENCE. PER ANNUM, BY POST, 21s.

MR. JAMES CROFTS, STOCK AND SHARE BROKER,
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Every description of British and Foreign Stocks and Shares bought and sold. SPECIAL BUSINESS IN COLLIERIES AND IRON SHARES.

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40 Gawton.
15 Great Vor, 22½.
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50 Ladywell, 23½.
20 Lovell (Tin).
35 Last Chance, 22½.
100 Malpas, 22s. 6d.
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25 Marke Valley, 20s. 6d.
50 New Pacific, 8s. 6d.
30 New Dolcoath, 30s.
50 New Quebrada, 23½.
100 Penrithal, 21s.
50 Plympton, 7s. 6d.
25 Pennerley, 22½.
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10 Roman Gravel, 217½.
75 Rookhope, 22s.
100 Rica.
50 Richmond, 26½.
25 South Roskear, 15s. 3d.
10 Sweetland, 25s. 9d.
50 S. Roman Grav., 21s.
50 South Aurora, 15s. 6d.
15 Tankerville, 29s. 3d.
40 Tecoma, 22s. 3d.
50 Tyllwyd.
70 Utah, 31s. 6d.
25 Van Conas, 24s. 3d.
50 W. Esqair Lie, 23½.
10 Wh. Grenville, 27½.
20 Wheel Crebor, 24½.

W. H. B. advises the purchase of Pennerley, Penrithal, and New Pacific. The present depressed state of the Mining Market affords the public an opportunity of investing in this class of security with great advantage, as the shares of many sound dividend and progressive mines, now obtainable at merely nominal prices, cannot fail to increase very considerably in value during the next few months. There are, however, many worthless concerns which should be carefully avoided, and investors and others may be saved much disappointment and loss by consulting W. H. B., who is in a position to furnish reliable information and advice in the selection of mining shares of real merit.

W. H. B. transacts business in every description of stocks and shares at the best market prices, and free of commission.
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30 Last Chance.
50 Tecoma.
15 Sweetland Creek.
20 Tyllwyd.
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Scale of Commissions on application.

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Owing to the Christmas Holidays, W. M. and Co.'s Weekly List will not appear until next week.

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2 Dolcoath, 22½.
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10 East Lovell, 210½.
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15 East Van, 38s.
45 East Seton, 8s. 6d.
35 Eberhardt, 24 11s.
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60 Exchequer, 14s. 6d.
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20 Great Vor, 42s.
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100 Gold Run, 4s. 9d.
35 Grogwin, 22½.
20 Great Laxey, 213½.
35 Hington, 38s.
20 Hudson's Bay.
25 L. X. L., 23.
45 Ladywell, 23½.
25 Last Chance, 39s.
10 Lovell (Tin).
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75 Malpas.
25 Marke Valley, 20s. 6d.
20 New Hendra, 22s.
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45 New Quebrada, 23 13s. 9d.
25 Newfoundland.
85 New Rosario, 22s.
60 N.W. Rosewarne, 26s.
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55 Old Treburget, 12s.
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75 Prince of Wales, 4s. 6d.
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10 Roman Gravel, 217½.
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30 Rookhope, 22s. 6d.
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60 S. Roman Grav., 21s.
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25 Tankerville, 29s. 3d.
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70 Van Conas, 24.
10 West Basset, 28½.
30 W. Tankerville, 22 6s. 9d.
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80 West Maria, 6s. 3d.
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30 W. Esqair Lie, 23½.
15 Wheel Grenville, 27½.
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5 Wh. Margaret, 22½.
20 Wheel Uny.

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WHAT TO SELECT—WHAT TO AVOID.
—BY FREDK. WM. MANSELL.
ENGLISH AND FOREIGN STOCK AND SHARE DEALER,
PINNERS HALL, OLD BROAD STREET, LONDON, E.C.
The DECEMBER number (now ready) contains a Comprehensive Review of the Position and Prospects of the General Investment and Mining Markets, &c., which should be read by all shareholders and others interested in such matters. It also contains many valuable hints to speculators.
* * * Differing in every respect from all monthly Circulars, it embodies a large amount of valuable information, and well deserves being filed for future reference.
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10 Dolcoath, 250.
20 Emma, 23.
20 Flagstaff, 23½.
20 Great Vor, 22.
10 Lovell, 23½.
10 Providence, 27.
20 Richmond, 25½.
35 Wheel Mary.

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20 Aberdunant, 6s.
20 Alameda, 15s. 3d.
20 Alt-y-Crib, 10s. 6d.
50 Boscawell, 12s. 6d.
50 Clee Hill Coll., 15s. 6d.
10 Grogwin, 22½.
50 New Pacific, 8s.
25 New Rosewarne, 7s.
3 North Roskear, 24.
5 Tankerville, 29 15s.
20 Uni. Bituminous, 21.
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Cedar Creek. Malabar. West Esqair Lie.
Parties wishing to purchase or sell in the foregoing are requested to make application. PENNINGTON AND CO., SWORN BROKERS.

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Patentee of COLLOM'S PATENT REVOLVING FRAME FOR DRESSING TIN, AMALGAMATING GOLD, &c.
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MR. T. L. COTTINGHAM OFFERS TO CAPITALISTS:—
ONE SILVER-LEAD SET, proved very rich.
ONE LEAD ditto.
ONE IRON ditto.
And a PROPRIETOR'S INTEREST in a RICH GOLD SET.
FOR SALE—A CAPITAL PERCUSSION TABLE, in first rate condition.
Mold, Dec. 22, 1873.

MR. J. S. MERRRY,
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Prices appear to have reached their lowest, and good shares are now worthy of attention.

Original Correspondence.

LEGITIMATE MINING.

SIR,—I concluded my last letter on this subject with a brief—too me retrospective—glance at some of the mountain scenery of Nevada, about which there is an awe-inspiring sublimity and grandeur which no language I can command can adequately portray. My reference to this matter was because some of the disrupted mountains previous to their displacement contained lodes of metallic minerals which had been formed in the regular order of true fissure veins, but by being broken and displaced in the manner I have indicated, their several parts may now be found at very different positions, more or less removed from each other. Sections of broken mountains of colossal dimensions are frequently found at considerable distance from each other and from their original position. One part may remain at a considerable elevation on the hill side, having been but little removed from its normal bed, whilst another or other parts may be nestling far down in some hollow, shrouded in heterogeneous debris, which by-and-by decomposes in some of its parts under the influence of actinic action and other agencies, and affords a nourishing soil for the growth and sustenance of vegetable life, which then soon appears with its accompanying livery of greenness, which serves to soften and diversify the scene. Whilst still other parts, which have been shivered into splinters, are carried away together with innumerable boulders down through the contiguous ravines and canyons into the vast chasms which alternate with the successive mountain ranges, which they serve to fill up, and form what eventually become spacious and fertile valleys. It sometimes happens that a single lode broken up in this way forms objects of attraction to more than one enterprising party of "prospectors" from the ostentatious display of its broken but productive parts, which lie scattered in some instances over very extensive areas. The dubious "float-stone" of the Cornish "shoder" but very faintly adumbrates the stream, so to speak, of broken lode-stuff which throngs the channels below the scene of such disturbing forces. Immense masses of debris, delta-shaped, containing a large admixture of metallic minerals, together with their kindred gangue associations, for a conspicuous line directing the eye of an observer with unerring rectitude to their cradle-ground, from whence they had been ruthlessly ejected. Occurrences of this kind have sometimes a very fascinating appearance, which the shrewd prospectors know so well how to take advantage of, as in addition to large quantities of rich ores bestrewn the surface in all directions, a comparatively large section of the mountain mass dislocated at every point and displaced, may contain in a vertical or semi-vertical position a part of the lode or lodes, which at first sight, especially to inexperienced observers, may appear as being still *in situ*, and of having withstood the violence of the forces which had so fatally rent from it its counterparts.

I have seen different companies mining in different portions of the same lode broken, together with the mountains in which they were formed, and scattered in various directions, whilst the longitudinal axis of two at least of its individual parts formed approximately, if not absolutely, parallel lines, and which were separated a considerable distance from each other by a deep intervening gorge, and, singular as it may appear, the cause of such a rupture could only be here and there seen in the bottom of the gorge. An intrusive mass of amorphous limestone, which seems to have been formed under an intensity of pressure and heat which had obliterated from it all trace of crystallisation, whilst the riven superincumbent mountains, which had been tilted high heavenward, consisted of syenite, porphyry, greenstone, and ironstone trap rocks, all of igneous origin, and generally understood to have been formed anterior to any limestone. About such a fragmentary lode as this I have seen some of the most popular experts of the day—esteemed both in this country and America—fluttering with their principals until they became intoxicated by the scene. The evolution of highly-coloured bubbles, cunningly "kaleidoscoped," excited their wondering faculties, and stimulated their imaginations until they felt that it was more easy for them to create the object of their desire than it was to calmly survey, comprehend, and interpret what Nature made and provided. Their enthusiasm kindled into a blaze, and a process of transmutation went on by an alchemy unknown to science, and which totally eclipsed its brightest achievements, and stultified the past experience of mankind. But, alas! doomed to terminate like another pyrotechnic display—the flaming rocket and a charred stick—after an expenditure of tens of thousands of pounds. And yet, incredible as it may appear, these were the sort of things which were wanted, because they were adapted to afflict with commercial blindness the capitalists of this and other countries. It was common to hear mine manipulators say—men who were engaged in concocting schemes for the market—"I care not a straw what the future of a mine may be if it is only good for the present; that is all that I care about. Show me anything that is capable of yielding a hundred or two tons of good ore which may be quickly got out, no matter what its geological features may be, no matter to what denomination of veins it may belong; if it can be so disposed as to show to good advantage I am prepared to buy, and can pay big money for it." To talk of legitimate mining restricted to practical operations following abuses of this kind sounds to my mind like arrant mockery. Yet it is to the practical part of mining and its general issues that people look, and which give, and must give, tone and character to it in all its commercial relations, alternately elevating and depressing it in public estimation.

Legitimate principles to be fully effective must be applied at the beginning, otherwise the interval between that period and the period of their adoption may give birth to acts which cannot but be, in the nature of things, productive of much harm throughout the subsequent periods of its history, and operate inevitably to lessen the profits which would otherwise have been realised, and esteemed eminently satisfactory.

There are two particulars of primary importance in connection with this part of the subject. First, the quality and exuberance of the natural sources of metalliferous wealth; second, their proper value as speculative channels of investment. These are matters which virtually affect pecuniary issues, and take precedence of all economics which may be observed in their practical development. If errors are committed in these primary and fundamental relations their ill effects will be transmitted, and permeate the entire system, incommoding the operations, and vitiating the results. If illegitimate objects are foisted upon public attention, and allowed to absorb it to the exclusion of sounder and more meritorious undertakings, and in opposition to the most earnest remonstrance of experienced men, let not the latter be censured for the misdoing of others, and the non-performance of impossibilities, and because of their inability to neutralise the effect of causes of an opposite tendency whilst they are still in active operation.

Again, many of the American mines occurring in limestone formations are but little, if anything, more reliable than the fragmentary classes of lodes which I have been considering. They sometimes consist of numerous ramifying fissures, exemplifying no allegiance to order, and but too frequently as short lived as they are irregular. Brilliant meteoric displays, but meteors still, and just as transient, and like them in the sudden extinction of their light, and the striking darkness which so swiftly supervenes. In this connection rises with impressive prominence the Mineral Hill catastrophe. This was certainly the most inexplicable blunder. The Emma I cannot but regard as a huge swindle, but the Mineral Hill, from the respectability of the parties interested, must, I think, be chronicled in the category of mistakes. The question whether proper precautionary measures were adopted, and what these should have been, to prevent such a crushing episode it is not my intention to discuss here. I merely refer to the matter in illustration of the views I entertain and the position I assume in regard to the term legitimate in its application to practical mining, and to what extent it is necessary it should be observed; and having been subjected to experimentation whilst on an extended tour of mine inspection in Nevada, I cannot but be entitled in all fairness to entertain and express an individual opinion on the subject. But what I most of all wish to show is that errors of judgment, or mistakes through inexperience,

malpractices of designing schemers can possible be, and should be as earnestly guarded against and avoided.

In writing on the important subject of legitimate mining for the purpose of pointing out in what department, and at what period, and by what agencies, and with what objects, the introduction and unobstructed operation of legitimate principles are opposed, it was most natural that I should revert to American mining, and some of the natural phenomena associated therewith, and by which it is so obviously affected, especially when it is taken into consideration the large amount of English capital which is invested in the Western States of that country, and the almost uniform experience of the parties concerned. Added to my own personal experience in the mines of Nevada and the provinces, with which some of the mines of that and adjacent States have been and still are before the public, it would be as if laying an embargo upon the spontaneous action of my mind to repress such a train of thought in connection with such a subject. I must still ask your indulgence for another letter on this subject.—*Llanrwst, Dec. 23.*

ROBERT KNAPP.

LLANRWST LEAD MINE.

SIR,—It would appear from your Notice to Correspondents in last week's Journal that that ubiquitous personage signing himself "Pedestrian" has again presented himself to your notice. As I am fully satisfied that he is actuated by malicious feelings against someone interested in the mine, and not from any benevolent intentions towards the public, I shall be glad to hear what he has to say about the mine. I will not make it a condition that he shall sign his proper name to his letters; he may write under the nom de plume which he has so unblushingly pirated. I impose no other condition than that you, Sir, shall vouch for him to be a sufficiently responsible man to be entitled to so much notice. I am quite sure that no one could possibly be actuated by better motives than I have been in reporting from time to time the prospects pertaining to this property. I have never swerved a single iota from the stern line of truth, according to facts and the convictions of my own reason and judgment. If I err in respect of these it would be not only unintentional but against my light of my acquired knowledge and past experience, and I have every facility for testing my judgment and the facts upon which it is exercised, both by scientific and practical experimentation, and I do not fail to avail myself of such means to guard against official errors. I am not at all apprehensive that the machinations of this redoubtable "Pedestrian" can do anything more than increase the popularity of the mine; and so confident am I of this that I will undertake to discuss the prospects in the most severe and critical manner that he knows how to visit upon it. And, further, that I will undertake to prove by every adverse position he may assume in regard to the value of this property that he either knows nothing of the mine, if he does of mining, which I very much doubt, or that he has been incited to the course he has taken by most unworthy motives. I will also undertake to answer any questions he may put to me regarding the different features of the mine, provided he will similarly undertake to answer any questions I may put to him. As we do not live here in a glass establishment we are not afraid of stones. If "Pedestrian" can tell me more about my own mine than I know myself, he will transcend in cleverness all the men I have hitherto met with. It is barely possible that such a destination is reserved for him.—*Llanrwst Lead Mine, Dec. 23.*

ROBERT KNAPP.

MINERS' CONVERSATIONS—No. X.

Bill.—As you appear to know a great deal about Mr. C. Harvey's history, I wish you would indulge my curiosity by stating all that you know about the Williams's; who, from honest pursuits, have acquired such immense wealth?

John.—I am willing to do my best in gratifying an honest enquiry. Mr. John Williams, the father, as was before stated, of Messrs. J. M. and Wm. Williams, lived at Scorrer, as you are aware. Of his ancestors I know but little. I have heard that for generations past they held a respectable social position, and lived at Burncoose, in Gwennap, where the last Mr. John Williams died, about 25 years ago. That residence became the property of the family, I believe, early in the 18th century. It is now the property, and one of the residences, of Mr. J. Michael Williams, of Pengreep and Carhayes. When Mr. Williams acquired Scorrer I know not. It is understood that the ancestors of Mr. Williams were always connected with mines, Mr. W. J. Henwood, the distinguished geologist and mineralogist, in one of his works says that the great grandfather of Mr. Williams commenced the great adit, sometimes called the "County Adit" in Gwennap, when he was manager of Poldice Mine in 1748. You know that this adit commences at Point Stamps, near Bessow Village, and drains not only Poldice, Wheal Unity, Wheal Gorland, Consols, United Mines, Clifford, Wheal Damsel, Wheal Jewell, Great Wheal Busy, but many other mines, all of which are said to have contributed to the expense of the work, which must have cost many thousands of pounds, the length altogether being 32 miles. I am inclined to believe that the Williams's have held Poldice ever since, except during the time that Mr. F. Pryor held the mine, with other mines, under the name of St. Day United. I don't know what profitable mines Mr. Williams possessed before he held Great North Downs, which in the latter part of last century yielded him large profits. Early in the present century he gained (and his company) 90,000*l.* by Godolphin Copper Mine, in Breage. After that he is said to have gained about 200,000*l.* by Treskerby and Wheal Chance. Also about the same amount from Wheal Damsel. He had besides other valuable mines in Cornwall, Wales, Ireland, and America, the names of which I do not now remember. The acquisition of such wealth enabled him to join Messrs. Foster and Co. in copper smelting, in which, on the dissolution of the company, as to the late Sir Wm. Williams, the capital was found to be about 1,000,000*l.* Mr. Williams began to buy land about 60 years ago, when he bought the manor of Calstock—a large Duchy freehold. After that he purchased estates in Stithians and elsewhere, but his sons and grandsons have purchased since his death ten times as much as he possessed.

Bill.—Who did Mr. Williams marry with?

John.—I am not sure, but I think I heard that it was with a daughter of a Mr. Martin, a respectable farmer, who lived at Killifreth, in Kenwyn. I think that that will account for the name "Martin" in the Christian name of Sir Fredrick, who is now the leaseholder of that farm, which adjoins Tregulow, Dowager Lady Williams's residence.

Bill.—You have mentioned three sons as the issue of the marriage. Had he no other children than Messrs. John, Michael, and William?

John.—Yes, Edward, who died in comparative youth. He had also at least three daughters: one was married to Mr. Tucker, late of Tremeton Castle; another to the Rev. Josiah Hill, a Wesleyan minister; and another, who died in 1829, unmarried. Mrs. Williams died in or about the year 1828. In the following year Mr. Williams, being then 79 years of age, married a girl named Edwards, aged 25, settling on her 300*l.* a year for life. By her he had a son, who died in infancy. After that the widow married an officer in the army, but is now a widow for the second time. The second marriage having occasioned great umbrage and disgust to his family, Mr. Williams assigned to his sons all that he possessed, subject to a life annuity of 1500*l.*, and after his decease the annuity of 300*l.* to his widow. Thereupon Mr. Williams retired to Sandhill, Calstock, where he died about six or eight years afterwards. The businesses were subsequently carried on under the firm of "John Williams, Junior, and Brothers," until the decease of Mr. Michael Williams about 14 years ago. Mr. Williams, during his long life, was not only a good man in the usual sense of the term, but he was a very religious man. He was a peacemaker, healing, where possible, breaches in families. As such it has been said that he re-married many a man. He was also very good to the poor. He was a member of the Wesleyan Society—meeting in Wheal Rose Chapel, which, I believe, he built. The late Mr. Wallish, of Helstone, one day met him, who, having no religion himself, was inclined to talk lightly on the subject. He said to Mr. Williams, "Of what religion are you, Mr. Williams?" "A Methodist," said Mr. Williams. "And of what religion is John?" "He is a Quaker," replied Mr. Williams. "Of what religion is Michael?" "He is a Churchman," said Mr. Williams. "Then make William a Jew, and you will be a match for the Devil!" said Mr. Wallish.

Bill.—I have heard that Mr. Williams had a remarkable dream about a gentleman who was murdered in London. Can you give me the particulars of it?

John.—It occurred about sixty years ago. Mr. Williams dreamed that he was in the lobby of the House of Commons, and saw a tall man shoot a short one. He asked who it was, and was told it was the Chancellor. His son, Mr. Michael, was at that time (1812) in London, seeking an interview with Mr. Perceval, with reference to the duty on copper, and being in a committee-room of the House on May 11 found himself locked in; when released, and told of the minister's death, he left London that evening by the 9 p.m. mail, reaching Scorrer on the morning of the 13th. When his father saw him

his son's unlooked for return, which was before a letter of the 11th could be received at Scorrer by post, and you know that at that period no telegraphic communication existed.

Bill.—Mr. Perceval, the Chancellor of the Exchequer, was murdered by Bellingham. The dream was something wonderful, and a puzzle, I dare say, to the philosophers.

John.—It cannot be accounted for on philosophical principles. It must have been a spiritual communication. For what purpose I cannot tell, but the fact is incontestable.

Bill.—Was Mr. Williams left a fortune by his father?

John.—I have heard that he was a legatee for 1000*l.*, and that his brother Michael had 17,000*l.* Michael lived and died at Trefula, near Redruth, in the house in which Captain John Richards lately died. Michael, by his scale of living, spent his 17,000*l.*; and had, therefore, together with his family, to depend on Mr. John Williams for situations of profit. He was kind to them all—a numerous family—the last of whom, Miss Philippa, died a few years ago, at St. Day. The Williams's can look back with satisfaction in the knowledge that all their wealth has been honestly acquired, and not by the tricky practices by mine brokers.—*St. Just, Dec. 25.*

AGENT.

GUNNISLAKE (CLITTERS).

SIR,—For the information and satisfaction of "C.," who, dating from the neighbourhood of this mine, ought to be conversant with the fact, I beg to say that the much desired change has taken place in the granite, and the lode is now passing through a country much more congenial for the production of mineral. Indeed, I believe I am safe in saying that the change is so complete that nothing is left to be wished for in this respect; and as a proof of it, the lode is now large and valuable both east and west of the shaft, and turning out some splendid ore. Moreover, when we take into consideration the immense deposits of decomposed granite, granite in a state of formation (will geologists tell us which?), or what is commonly called fire clay, that lies to the westward of this mine, and through which the lode passes, and also that eastward the mine is close to the junction of the granite with the kiles, the wonder is that the shareholders have had to wait so long for the prosperity that now seems to have come upon them; but, better late than never, I quite agree with "C." as the propriety of exploring the mine more fully. Why not take off 10*l.* or 12*l.* per month from the cost of management, and spend it in exploring some of the eleven lodes that have been intersected in the adit? I should advise when I say that such a course would be highly approved by a large section of the local shareholders. Why the committee should continue to spend month in management is a problem that those outside the magic "ring" are unable to solve, unless it be on the theory of "wheels within wheels." Unless the committee take action in this matter, and mend their ways before the next general meeting, the question will certainly be brought up for discussion. With the present splendid discoveries, and economical management in the future, I see no reason why Gunnislake (Clitters) should not resume its proper place among the dividend mines in the coming year of 1874.

[For remainder of Original Correspondence see this day's Supplement.]

STANNARIES COURTS' RETURNS.

The usual return furnished by the Registrar of the Court of the Vice-Warden of the Stannaries shows the proceedings of the court in 1872 in equity, in common law, and for the winding-up of incorporated companies. This has just been issued, and we give the following abstract:—

Under the common law jurisdiction in Cornwall (there being no common law proceeding for Devon) there were two writs of summons. There were two appearances entered, one declaration, one plea, one replication filed. The total amount of which actions were brought was 250*l.* The total amount of costs was 8*l.* 5*l.* Five appeals were entered by plaintiff. Two judgments were entered for plaintiff. There was one execution against goods. Judgment was entered in one case between 3*l.* and 5*l.*, in one between 5*l.* and 10*l.*, and in the causes between 20*l.* and 50*l.* The total amount for which plaintiffs were entered was 106*l.*, for which judgments were obtained 61*l.* The amount of costs, exclusive of fees, was 6*l.*; the total amount of fees, 1*l.*

Under proceedings for winding up under Companies Act, 1862, there were 12 petitions against joint-stock companies, and seven against unincorporated companies in 1872, against six such cases in 1871, fifteen in 1870, twenty-six in 1869, fifteen in 1868, and three in 1867. There were five orders made for winding up against seven in 1871, eight in 1870, fourteen in 1869, eleven in 1868, and three in 1867. There were 123 petitions or orders for winding up filed in 1872, against 145 in 1871, 142 in 1870, 130 in 1869, 125 in 1868, and 14 in 1867. There were 79 affidavits filed, and 1060 different proceedings in 1872, against 777 and 1135 in 1871, 708 and 1070 in 1870, 613 and 1555 in 1869, and 467 and 998 in 1868. The total amount of debts claimed and adjudicated upon in 1872 was 37,298*l.*, in 1871, 15,330*l.*, in 1870, 28,794*l.*, in 1869, 16,962*l.*, in 1868, and 1472*l.* in 1867. The total amount of claims made was 14,518*l.* against 12,110*l.* in 1871, 55,250*l.* in 1870, 21,947*l.* in 1869, 13,922*l.* in 1868, and 1594*l.* in 1867. There were five appeals in 1872, and 31 without *fiat facias* within the Stannaries, and 79 without in 1871. The number of contributories included in the list of contributories was 370. The total amount of the gross proceeds of sales of estates and properties was 2128*l.* in 1872, against 254*l.* in 1871, and 2693*l.* in 1862.

The total amount received by official liquidators, or by the Registrar of the Court when acting as liquidator, was 25,967*l.* in 1872, against 22,764*l.* in 1871, and 19,400*l.* in 1870. The total amount of expense was 311*l.* against 268*l.* in 1871, and 192*l.* in 1870. The total amount of dividends ordered was 21,310*l.*, against 27,168*l.* in 1871, and 177*l.* in 1862.

DING DONG.—This is one of the oldest mines in Cornwall. It has been worked, according to documentary evidence, for three centuries, but has probably been a supplier of tin from the days of the Phoenician traders. While its existence for so long a time is an example of the durability of some Cornish mines, it has not been favoured with unbroken good fortune. Vicissitudes have befallen it, and again. Yet it plods steadily on, its changes of ownership few, its proceedings remarkably quiet. The Messrs. Bolitho own one-half the mine. Its pursuer is Mr. Richard Wellington, the manager of their extensive tin smelting works, and one who joins half a century's experience in mine management, and in all that is connected with tin to an undimmed intellect and unabated vigour. Just present three reasons exist why its status is of particular interest to the Far West. It shows the value of perseverance in mining. Although its very extensive veins have been scanned by practised eyes a thousand times at the surface, and was thought to have been well and thoroughly tested underground, a new and extensive lode has been discovered within the last two years. It traverses the mine parallel with other proved veins, has been reached by cross-cuts at two or three points, and has fair to extend the connection of the Bolitho family with it to the third and fourth generations, even as their ancestors have been identified with it for a third and fourth. For at times, so that abundant reason has been given for steady work and confidence have met their reward. This is one of the reasons. A second is the fact that the mine is situated in a district which is distant about 4 miles, in a northerly direction, and to the wild and thinly-populated district in which it is situated it is very valuable as a means of employment. It is just now spending nearly 10,000*l.* a year in labour, over 4000*l.* per annum among merchants, and about 2000*l.* annually in costs landed at Penzance, &c. Just at present there are 132 men on tutwork, 10 men on tribute (a number soon to be considerably increased), and a total of 275 who gain a living by this evergreen lode. A third reason is that it is now, if not the best, one of the best mines in the neighbourhood; and its success, in spite of all the competition and other untoward drawbacks, ought to be, and is, an encouragement to others to be steadfast, undiminished, and eventually successful. The last account showed that 60 tons 2 cwt. 2 gr. of tin had been sold at an average price of 72*l.* 19*l.*—the figures varying from 7*l.* for 26 tons to 58*l.* for 2 tons 4 cwt. There was thus 4386*l.* 3*l.* to meet the expenses of 16 weeks. The expenditure was 4297*l.* 13*l.*—the cost-book showing the principal items to be 358*l.* for tutwork; 673 for materials; 516*l.* for 549 tons 16 cwt. of coal, at 1*l.* 10*l.* for 358 tons of fuel; 358*l.* for surface men; 319*l.* for stamping and wages; 210*l.* for cartage and haulage; 213*l.* for tribute; 170*l.* for engine men; 210*l.* for agency, clerk, &c.; 30*l.* doctor and club, and the remainder in minor miscellaneous items. The profit on the 16 weeks was 88*l.* 10*l.*, and there is now 382*l.* in hand after paying every known liability up to the end of the 16 weeks. The following are at present the most valuable points in Ding Dong:—The 70 ft. level, east of cross-cuts, in Robin's lode, is driving at 10*l.* per fathom; worth 30*l.* Two miles in the back at 2*l.* 17*l.* 6*l.* are worth 30*l.* Three stops in the back of the cross-cuts, at 3*l.* 18*l.* per fathom, are worth 20*l.* Two stops in the back of the cross-cuts, at 3*l.* 7*l.* 6*l.*, are worth 14*l.*; the same level, worth 2*l.* per fathom, is driving at 5*l.* 10*l.* Two stops in the back here 4*l.* are worth 15*l.* The same level in the back of the 60 ft. level, against Robin's shaft, is worth 20*l.*, and is worth 6*l.* Robin's shaft, on Robin's lode, is being sunk below the 20 ft. level, nine men, at 19*l.* per fm.; the lode here is 18 in. wide, and very promising.

From M. W. BAWDEN (Liskeard, Cornwall).—The Mining Journal at the close of the year assumes a more cheering aspect than has been experienced for some considerable time past, with every probability of most shares having their minimum rates, and, no doubt, as the opening year advances, much better prices will be attained for all good dividend and progressive stock. In taking a retrospect of the closing year I find it has been characterised by a long continued and heavy amount of depression scarcely before witnessed in the history of mining, principally occasioned by the influx of tin from Australia; high prices for coals and other articles, with the scarcity of labour that even our best mines in the two counties are but little more than able to meet the additional expenses incurred of working under present existing difficulties. The total quantity of tin ore imported and sold during the present year from Australia amounts to 482 tons, which has considerably depreciated the standard of English tin, otherwise obtained from Devon and Cornwall in the aggregate has been 55,104 tons, amounting to 248,527*l.* 14*l.* 6*l.* at an average produce of 6*l.* 5*l.* per cent., whilst that of the preceding year was 63,364 tons, realising 316,308*l.* 11*l.* 6*l.* at an average produce of 6*l.* 6*l.* per cent. The fine copper, showing a further diminution in the returns of copper ore of 10,000 tons, when compared with a corresponding period of last year, which evidently shows that the copper mines of the two counties are considerably reducing their annual returns, and judging from present appearances, there seems but little prospect of increased quantities in future. It is some degree of satisfaction, and generally admitted by those who are conversant with the tin trade, that the present rate of imports from Australia cannot be maintained during the coming year; this combined with the cheaper coals, lower prices for other commodities extensively used in mines, and an advanced tin standard, there is every probability that the new year will be crowned with greater success, and prove more prosperous to "Old and All" than the departing year, which is about to be enrolled in the annals of

MINING BY MACHINERY—No. IV.

BY CHARLES BELL, C.E.

THE AIR COMPRESSOR.—After the drill the most important element of mining plant is the air compressor, which has to supply the requisite power to the rock drills. Many systems have been tried. Of course a great amount of experience was acquired at the Mont Cenis, and in the hands of such an engineer as Sommeiller, and such makers as Messrs. Cockrell, the air compressing engines were speedily brought to such a state of perfection that the same principle which was used at the Mont Cenis is even in our days the most perfect out. The result obtained by the machine thus constructed is as high as can ever be expected to be obtained from air compressors, but the fault of these machines is that they are rather expensive. They are built on what we call the wet system, in which the air instead of being displaced by a piston is displaced by a column of water, put in motion by a piston, and which expels the air out of the capacity into which this water is pressed. The interposition of the water between the piston and the air has three principal effects.

1.—It annihilates entirely the leakages between the piston and the cylinder.

2.—It fills completely the vacant places in the air compressing cylinder, and the water is pressed far enough to fill every particle of space in the air compressing cylinder, and even enough to create a slight overflow.

3.—It cools the air pumps and the air itself, and brings down the wear of the whole machine to a minimum.

We make these machines in seventeen different sizes. The other system, which we call the dry system, consists simply of an air-pump, without the intervention of water, in which a metallic piston pushes before it the air which has to be compressed. Of course, these machines are much simpler and cheaper, but they are by far less economical, and wherever the economy of coal is an object, or wherever the work is of a permanent nature, or likely to last any considerable length of time, we would certainly advise the use of the wet system compressors, notwithstanding their higher cost. On the other hand, the dry air compressors are well suited for all such cases as the driving of a moderately long level, or small shaft, where the work will not last a great many months, and where it is not advisable to invest too much money in plant.

The subject of air compressors is one of great and increasing interest, as the present tendency, especially in the presence of the high price of labour and the continual difficulties caused by the men, is to replace manual labour by mechanical power, either in boring of the rock, the getting of coal, the working of underground pumps, or of hauling and winding machines. It will, therefore, be well in placing the rock boring machinery which includes the air compressor, for the sinking of some new shaft, or the driving of some new level, to keep in mind the future uses which can be made of the compressed air when the colliery or the mine is once opened, and the expense having been once incurred of the acquisition of air compressors, receivers, and great lengths of piping to carry the air to the rock boring machines, it is certainly unadvisable to allow all that plant to remain inactive, or to have to realise it at more or less unfavourable figures; it may safely be assumed, from the tendency which may easily be observed by those who, like ourselves, have had opportunities of seeing numerous collieries and mines in various countries, that the air compressor will be one of the most important items of the mining plant of the future. It may be here useful to repeat what we have previously said in our general consideration on rock boring by machinery, and that is to say that it is not safe to depend exclusively on the air emitted from the machines when they are worked by compressed air for the ventilation of a long drift or a deep pit. It is especially the case when nitroglycerine is used and dynamite and lithofracteur, the gases evolved by the explosion of such substances affecting the men a great deal more than gunpowder smoke. When the work by means of machinery is carried on at a brisk rate the amount of firing is considerably increased, and unless the ventilation be helped by some artificial means we have always found in practice that the men shortly refuse to work any longer, as they complain that the pains which the gases cause them are more than they can bear. The volume of air emitted by air compressing machines is, after all, a very limited amount. Supposing two drills to be worked, the air compressor required to work them would not compress more than 100 cubic feet of atmospheric air per minute. Should a drift, therefore, be 7 by 7, the amount of air emitted from the machines, even supposing there was no loss between the compressor at light and the front of the heading, or the bottom of the pit, would only fill 21 lineal feet of the drift; but it must be kept in mind that the air thus poured into the drift does not displace the vitiated atmosphere bodily, but rather mixes with it, and thereby becomes improper for the men's respiration, a small amount of nitroglycerine gases being sufficient to taint the air so as to make it unwholesome for the men. In these matters, as in all others, experience is the best guide, and we can only repeat again that in practice, and wherever machinery is briskly used, and the amount of work done is giving satisfaction, the nitroglycerine fumes must be dispelled by a larger amount of air than that emitted by the machine. When natural means fail to procure the desired ventilation a small fan, worked by the same compressed air which actuates the machine, connected with some large pipes, 1 ft. in diameter or so, which we commonly make of thin iron; sheet iron or galvanised iron amply supplies this essential want. Even where natural causes have a tendency to produce ventilation, their action is not certain enough to work in all weathers; a shift of the wind, a change of atmospheric pressure, will even annul, or completely diminish, this natural ventilation, and we have even seen work actually stopped for a day or two solely on account of this cause.

THE EXPLOSIVES.—This chapter will be devoted to a few remarks on the principal explosives now used. We will say nothing about gunpowder, because it is too well known to require anything more being said than that it is, in our opinion, inferior in its action to the other more recent explosives, which are both safer and more powerful. The three principal explosives which we have found in more or less general use, either in England or on the Continent, are dynamite, lithofracteur, and compressed gunpowder. Dynamite is getting to be well known, and it is a pity that greater facilities have not yet been given for its carriage through the land. Its active principal is nitroglycerine, the difference between the two being simply that in manufacturing dynamite the nitroglycerine is poured on to some inert substance, like sand. At first dynamite was made by means of a siliceous sand, said to be the fossil shells of some very minute zoophytes of former geological periods. These little shells being empty, the nitroglycerine poured upon them penetrated within their minute capacities, and after these shells, or sand, had been left sufficiently long in contact with the nitroglycerine the supernatant oil was carefully decanted, the sand carefully washed, so that no free nitroglycerine adhered to it, and, being properly packed, was sent out in that state. It is very difficult to explain why nitroglycerine, which is such a dangerous compound in its free state, and which has caused already so many accidents, should become so perfectly innocuous by this admixture of inert matter. This neutralising action has been aptly called the molecular packing of each atom of nitroglycerine, each within its tiny shell. Whether this is the true cause or not we cannot well say. Lithofracteur is a substance of similar properties and power. It is difficult to say which of the two is preferable, but, so far as England is concerned, lithofracteur being neither manufactured nor allowed to be sold in this country for the present, more detailed information on this substance will be useless. The characteristic of these two explosives, as compared with gunpowder and gun-cotton, is their extreme safety; in fact, it is impossible to explode lithofracteur or dynamite unless provided with special detonators or capsules. They can be knocked about, placed on the rails before a wagon, pitched from the height of a towering cliff, thrown in the fire—in fact, ill treated in every conceivable manner—without exploding in the least; but when the explosion is produced, by using the proper means, the result is extraordinary. It is scarcely proper for us to expatiate at full length on the manufacture and properties of these substances; our object being rather to describe their usefulness in carrying out

work in mines. It has long since been found on the Continent that gunpowder in its ordinary state is a very imperfect explosive—in fact, as we have said before in our introductory remarks, rapid progress in mining cannot well be obtained simply by the use of machines alone, unless some powerful explosive is employed at the same time.

(To be continued.)

Registration of New Companies.

The following joint-stock companies have been duly registered:—

NEW THARIS SULPHUR COMPANY (Limited).—Capital 75,000*l.*, in 10*l.* shares. To acquire the Dos Amigos Iron Pyrites Mine. The subscribers (who take one share each) are—T. N. Erith, Bemot Colfax, Somerset; D. S. Davy, Edmonton; John Hoskins, Ashburton; H. J. Pellew, Lawn Cottage, South Lambeth; C. Chambers, 2, Suffolk-lane, Cannon-street; John Kingsbury, Knowles-road, Brixton; J. T. Darke, Oatland's Park.

REDONDA PHOSPHATE OF ALUMINA COMPANY (Limited).—Capital 100,000*l.*, in 10*l.* shares. To acquire phosphate deposits in the Island of Redonda, West Indies. The subscribers are—John Walker, New Cross, 25; W. C. Dealey, Chester, 25; A. E. Watson, Friar Park, Finchley, 1; T. E. Briggs, Manley-grove, Stratford, 1; J. H. Richardson, 8, Finch-lane, 1; T. C. L. Murray, Pelham-crescent, Brompton, 25; and N. R. Vail, Redcliffe-gardens, South Kensington.

HOISELEY COMPANY (Limited).—Capital 150,000*l.*, in 20*l.* shares. To carry on business as ironfounders and mechanical engineers, at Stafford. The subscribers (who take ten shares each) are—Thomas Avels, Edgaston; Thomas Short, Hamborne; Henry Symonds, Birmingham; J. Jaffray, Edgaston; John Teene, Birmingham; M. R. Griffin, Birmingham; J. T. Bunce, Birmingham; and T. S. Fallows, Birmingham.

WEST MARSH IRON COMPANY (Limited).—Capital 30,000*l.*, in 100*l.* shares. To take over the West Marsh Ironworks, at Middlesbrough. The subscribers are—T. J. Thompson, Stockton-on-Tees, 20; Thomas Ingledey, Coatham Redcar, 20; William Hanson, Middlesbrough, 20; Richard Hanson, Middlesbrough, 10; J. J. Thomas, Middlesbrough, 5; J. Ireland, Middlesbrough, 20; and R. H. Charlton, Newlands, Middlesbrough, 10.

CUMBERLAND BARYTES MINING COMPANY (Limited).—Capital 75,000*l.*, in 5*l.* shares. To acquire property known as Rosegill, in the parish of Gilex, Cumberland. The subscribers (who take one share each) are—Joseph Day, Great Winchester-street; W. H. C. Mollitt, 11, Austinfriars; W. Knight, 6, Commercial-road; Charles Day, St. Mark's-terrace, West Hackney; H. Beckwith, Ryde Vale, Balham; W. Wilkinson, Balham; and Charles Phelps, Surbiton.

STOCKPORT COTTON SPINNING COMPANY (Limited).—Capital 30,000*l.*, in 5*l.* shares. To acquire the Heat Riding Mills, at Stockport.

LIANHARRA COLLIERY COMPANY (Limited).—Capital 75,000*l.*, in 10*l.* shares. To acquire the above property in the county of Glamorgan. The subscribers (who take one share each) are—H. Darville, Windsor; L. Brorge, Haigh-lane, E.C.; Trew Igoon, Slough; J. A. Mainey, 26, Great George-street; C. Eley, Cannon-street; E. S. Juddkin, Upper Thames-street; and J. G. Cope, Lancaster Gate, Hyde Park.

STANLEY KILBURN COLLIERY COMPANY (Limited).—Capital 20,000*l.*, in 10*l.* shares. To acquire the Stanley Collieries, near Derby. The subscribers (who take one share each) are—H. A. Dubois, Gresham-buildings; A. G. Miller, 4, Great George-street; A. H. Lloyd, Fentiman-road; J. F. Dunham, Little Ford; E. W. Moore, Chiswick; J. D. Black, 3, Louthbury; and Uriah Miller, Great Winchester-street-buildings.

ALZARINE AND ANTHRACENE COMPANY (Limited).—Capital 100,000*l.*, in 100*l.* shares. To carry on the manufacture and sale of alzarine and anthracene. The subscribers (who take one share each) are—M. J. Fenner, 115, Bishopsgate-street; H. Aleock, 24, Crosby Hall Chambers; C. A. Mavrogolatos, 5, Fenchurch-street; H. J. Fenner, 115, Bishopsgate-street; F. Versuarm, 3 and 4, Great Winchester-street; and R. H. Laurence, Snimmer-road, Peckham.

PATENT LEAD ENCASED BLOCK TIN PIPE COMPANY (Limited).—Capital 50,000*l.*, in 10*l.* and 5*l.* shares. To acquire the business of Walker Campbell and Co., of Liverpool. The subscribers (who take one share each) are—John Taylor, 27, Great George-street; G. Rogers, Longwood House, Somerset; W. Ogilvie, Angel-courtyard; C. T. Hawkins, Summertown, Oxon; Arthur Telford, Surbiton; J. Bell, Victoria Buildings, S.W.; F. A. Maurier, Hely-road, Oxford.

HUGHES AND COMPANY (Limited).—Capital 28,000*l.*, in shares of 12*l.* each. To carry on business as merchants and agents.

WILLIAM HENRY GLOVER AND COMPANY (Limited).—Capital 25,000*l.*, in 10*l.* shares. To take over the business of Mr. W. H. Glover, of Ashton-under-Lyne.

NEWPORT (ALEXANDRIA) DOCK COMPANY (Limited).—Capital 100,000*l.*, in 100*l.* shares. To acquire the above dock. The subscribers (who take one share each) are—Lord Tredegar, Tredegar Park, 50; C. C. Morgan, M.P., Tredegar Park, 10; George Walker, Castleton, 10; C. W. Jones, Newport, 10; E. M. Underwood, King's Bench-walk, Temple; J. C. Parkinson, Merton, 10; C. H. Mills, M.P., 67, Lombard-street, 5; George Elliot, M.P., 22, Great George-street, 50.

CLOMBROCK COLLIERY COMPANY (Limited).—Capital 100,000*l.*, in 5*l.* shares. For the acquisition of a colliery at Queen's County. The subscribers (who take one share each) are—W. M. Crowe, 1, Westminster Chambers; H. W. Trinder, Crown-court, Old Broad-street; Charles D. Fox, Delahay-street; J. G. Barrow, 46, Castle-road, N.W.; W. Chadwick, Pembroke Gardens; E. P. Alderson, 37, Old Broad-street.

HONDURAS INTER-OCEANIC RAILWAY COMPANY (Limited).—Capital 5,347,720*l.*, in 30,427 100*l.* shares; 177,135 12*l.* shares; and 8970 20*l.* shares. To obtain concessions for the carrying out of the Honduras Inter-Oceanic Railway. The subscribers are—W. Digby Seymour, Temple, 5; W. G. Fitzgerald, The Grange, Taunton, 5; F. Higgins, Fox Hall, Acton, 5; William Reed, Howick-place, S.W.; J. W. Jones, 44, Albermarle-street, 5; C. F. Denny, Upton-road, Bexley, 5; H. M. E. Desmond, 102, Redcliffe Gardens.

GELLYDGE COLLIERY COMPANY (Limited).—Capital 80,000*l.*, in 10*l.* shares. To acquire the above colliery, situated at about nine miles from Newport. The subscribers (who take one share each) are—L. B. Kenney, Neath; J. H. W. Wyatt, Swansea; T. W. Martin, St. Swithen's-lane; J. C. Deane, St. George's-road; J. D. Roberts, Acton; J. Lord, 6, Abbey-road, W.; and W. F. Gardner, 34, Old Broad-street.

APOLLINARIS COMPANY (Limited).—Capital 200,000*l.*, in 5*l.* shares. To acquire rights in connection with the supply of water from the Apollinaris spring, near Altheim, Prussia. The subscribers (who take one share each) are—D. Steinkopf, East India Avenue; George Smith, 52, Queen's Gate, South Kensington; W. F. Blakeway, 50, Threlkneedle-street; George Green, Middleton road, Kingsland; F. Ensch, 109, Grove road, Camberwell; A. Scott, Highbury Grange, N.; R. J. Bridge, Sutherland Gardens, W.

HOWE MACHINE COMPANY (Limited).—Capital 400,000*l.*, in 20*l.* shares. To carry on the manufacture of sewing machines. The subscribers (who take one share each) are—S. A. Howe, Glasgow; N. P. Stockwell, Queen's-gate, Hyde Park; Charles Cooper, 2, Talbot-court, E.C.; C. A. Avery, Elraston place, Queens' Gate, W.; F. M. Tower, Glasgow; H. A. Pocock, Alfred-villas, West Croydon; and G. W. Phillips, Surbiton.

PROTECTION FOR INVENTORS.—A decision upon which inventors and the public may fairly be congratulated has just been given by the Attorney-General in the case of SWAIN v. SCOTT, for it has very frequently been complained that the introduction of useful inventions is delayed, if not altogether prevented, through the issue of patents for inventions so nearly similar that the public cannot distinguish the difference, and fear to adopt either in the face of threats of litigation from all quarters. If patents were granted, as in Prussia, for new inventions only much less opposition to the "rights of inventors" would be heard. In the case in question both gentlemen claimed to have invented improvements in cupola and blast furnaces. Mr. Theodore Aston, Q.C., maintained, on behalf of Geo. L. Scott, that his invention was simpler and less expensive in construction than that of Swain; that the molten metal chamber was contained within the cupola itself, instead of being constructed on one side, and that the hot-blast into such chamber was introduced in a more direct manner than in Swain's cupola furnace. He further alleged that the saving in fuel in the use of Scott's furnace was estimated at not less than 300*l.* per annum. On the other hand, Mr. Herschell, Q.C., contended, for Mr. Josiah Swain, that Scott's application was not only anticipated by Swain's patent, but that a precisely similar modification to Scott's had been used at several foundries during the last three years, since the date of Swain's patent, and notably at Messrs. Wm. Jones and Co.'s sewing-machine manufactory, at Guide Bridge. He produced statutory declarations in proof of his assertion, when Mr. Aston contended, that the furnaces alluded to by Mr. Herschell were all unsuccessful experiments, and, therefore, ought not to prevent the issue of letters patent to Mr. Scott. He asked the Attorney-General not to refuse the patent to Mr. Scott, as, if his invention were an infringement, as alleged, Mr. Swain could afterwards recover royalties for the infringement. The Attorney-General replied that being satisfied, as he was, that the inventions were alike in principle he could not think of throwing the burden of a lawsuit on Mr. Swain to defend his patent as against a subsequent patent now being asked by Mr. Scott for the same invention. He, therefore, ordered that the patent should not issue.

LONDON GENERAL OMNIBUS COMPANY.—Traffic receipts for the week ending Dec. 21, 1873, 16*l.* 1*l.* 1*l.*

BREAKFAST—EPPS'S COCOA—GRATEFUL AND COMFORTING.—“By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which will save us many heavy doctors' bills.”—*Civil Service Gazette.* Made simply with boiling water or milk. Each packet is labelled—“JAMES EPPS and Co., Homoeopathic Chemists, London.”

MANUFACTURE OF COCOA.—“We will now give an account of the process adopted by Messrs. James Epps and Co., manufacturers of dietetic articles, at their works in the Euston-road, London.”—See article in *Cassell's Household Guide.*

Meetings of Public Companies.

NORTH AMERICA GOLD MINING COMPANY.

The annual general meeting of shareholders was held at the City Terminus Hotel, on Tuesday.

Dr. J. H. STALLARD in the chair.

Mr. HENRY MAY (the secretary) read the notice convening the meeting.

The report of the directors stated that the accounts showed a small balance of loss of 11*l.* 1*l.* on the total transactions of the company since its formation, against which must be put the value of the accumulated gravel tailings for the last two years, and the stock of gravel unwashed remaining in the yard from last season, together with a considerable quantity since taken out. In other respects the condition of the property has not materially changed since the statement made at the general meeting in June last. The directors being deeply sensible of the great disappointment which must be felt by every shareholder of the company, resolved to take the best steps possible to ascertain whether the failure in results is to be attributed to mismanagement, failure of the property, or to circumstances beyond control. The Chairman being unable to visit the property, as was anticipated in June last, it was thought desirable to request Mr. McLean to examine the mine in company with Mr. Simson, a shareholder of the company, who happened to be in California at the time. Mr. McLean's report has been received within the last few days, and printed copies have been circulated amongst the shareholders. This report seems to confirm the confidence of the directors in the character of the superintendent, Mr. Morgan, and of the energy and judgment he has displayed in laying out the property for future working. Mr. McLean appears to have full confidence in the future value of this property, and it remains only for the directors to recommend the shareholders to await patiently the result of another season's operations, and to rest assured that every effort shall be made by the board to protect their interests.

The report of Mr. McLean concludes as follows:—“I see nothing discouraging in the present aspect of the North America—the old tunnel remains intact since you took possession. The tests upon which reports were made were mainly taken from this tunnel, the new tunnel at that time having no washing floor for testing by the carload. Promptly second the plans of your superintending, and I am confident all will soon be well.”

The CHAIRMAN said he had very little to add to the report, except it was to mention that another letter had been received from Mr. Simson, who he regretted very much was not present; also another communication from Mr. McLean, containing expressions as to the property being more favourable than those contained in his report. Mr. Morgan, in his letter, says there had been a very mild storm of snow, and if it should continue he should be able to commence washing shortly, but he added that the ground was very dry, and would take a considerable amount of “fall” before the ditches began to run. He gave a very favourable account of the appearance of the gravel, pronouncing it to be better than anything previously washed, and was greatly encouraged both as to the gravel and the facilities for washing it, stating that it would be got out at a much less cost than last year. The profit and loss account showed a balance against the company upon the year's operations of 11*l.* 1*l.* Having counselled the shareholders to exercise a little more patience, and expressing a belief that in the course of another season the company would be in a much more satisfactory position, he moved the reception of the report and balance-sheet.

Mr. TYLER seconded the proposition. He had the greatest confidence in the management, and he spoke from personal observation of what he had seen during his visit in San Francisco.

Mr. FARMER asked if it was the intention of the board to acquire the additional property referred to by Mr. McLean? The CHAIRMAN said he had not taken any active steps in that matter at present, thinking it undesirable to consider the question of raising additional capital for the moment, but at the same time they would not lose sight of Mr. McLean's suggestion. With respect to the additional tailings ground, the superintendent had received instructions to complete its purchase when he could do so upon advantageous terms. When he (the Chairman) visited the property last year he saw the great necessity of securing the ground, and it would be done in due course.

Mr. JONES drew attention to the London expenses.

The CHAIRMAN stated the directors had passed a resolution not to take any more fees until the company shall have been placed in a profitable position, and the secretary had consented to reduce his salary to the extent of 100*l.* per annum.

The motion adopting the report and accounts was put, and carried unanimously. Upon the proposition of Mr. T. T. JONES, seconded by Mr. HICKS, the re-election of Mr. Greenhow as director was unanimously agreed to.

It was also resolved as a recommendation to the directors that Mr. Simson should be elected to a seat at the board.

A vote of thanks to the Chairman and directors closed the proceedings.

SNOWDRIFT SILVER MINING AND REDUCTION COMPANY.

The fourth half-yearly meeting of shareholders was held at the offices, Finsbury-circus, on Monday.

The Hon. ASHLEY PONSONBY in the chair.

The report of the directors stated that Capt. Johns is now in England, but it is probable that he will shortly return to Colorado to take the joint underground management of the Snowdrift and Daniel Peters Mines and the Silver Plume Mines, which will be a favourable arrangement for this company and the Silver Plume Company: 250*l.* would now suffice to prove the Snowdrift lode at the eastern adit and the deep adit. It is the confident opinion of the directors that good ore ground will be found at both these points, and they strongly urge upon the shareholders to subscribe for the remaining unissued debentures, to enable the directors to carry out the above objects, and to open up the mines. The distance to drive to the eastern part of the lode is probably less than a fathom, and to the western part of the lode between 5 and 6 fathoms. By opening upon the Daniel Peters lode at a lower level the directors also expect to reach valuable ore ground. The directors still have the greatest confidence in the value of the property. The Colorado Terrible, the Pelican, and the Silver Plume lodes—all in the immediate neighbourhood of the Snowdrift and the Daniel Peters—are turning out extremely well, and there is no reason why similar success should not follow from the working of the company's mines. The granite in which the lode is embedded appears to be of a highly congenial character.

The report of Mr. E. Le Neve Foster detailed the work done and the present state and future prospects of the mines. From the end of last June up to the present time only one month's work has been done on the mines, as at the end of July the men refused to work any longer until they were paid all their back wages; for it must be remembered that since the beginning of the year they have always been from two to four months in arrears, and at last, becoming alarmed lest they should not get their back pay, as funds were only forthcoming in sufficient quantity to meet the monthly cost, they refused to work any longer, and placed a lien on the property, which has consequently stopped everything until he is able to pay their arrears in full. His advice for the future is to do no further work on the Daniel Peters lode until the Snowdrift is proved, and for the development of which lode he advises simply to further explore it at the eastern adit, where the showing at the present time is good, to continue the driving of the deep adit to find out the value of the lode at that point, and, if possible, to sink the whim-shaft.

The CHAIRMAN said all the information possessed by the board had been communicated in the reports just submitted. Their position, indeed, he might say their only difficulty, was want of capital. Their property, topographically and geologically, was everything that could be desired, being in the same district, upon the same lodes, and in every respect identical with the Colorado Terrible, the Pelican, and Silver Plume, and all that was required in Snowdrift to secure the same satisfactory results as were being realised in those mines was to explore the mines to a corresponding depth. The Colorado Terrible had paid off out of one year's working no less a sum than 20,000*l.*, which, apart from any other consideration, should be of itself sufficient to encourage shareholders in Snowdrift not only to co-operate with the board in providing the small amount of additional capital necessary, but to look forward with confidence to the early realisation of highly satisfactory results. The directors had let the eastern portion of the property on tribute for nine months, the tributors incurring all expenses in connection with raising the ore and hauling it to the mill to dress, giving the company 25 per cent. of the net profits; and as to the western part of the mine they were about to telegraph out to let that also upon tribute for one year, but hoped to secure for the company still more satisfactory terms. The contract price for tribute was 30 per foot, and the lode, it was calculated, would be struck in about 6 fms. The shareholders were aware that a large amount of the share capital had not been subscribed for, there remaining about 20,000*l.* unissued, and debentures to the amount of 4000*l.* out of 10,000*l.*, and the directors were very desirous to issue the latter. They had ample water-power at the mill for crushing purposes, and one of the best mills in the country. The railway would be completed to Georgetown in February, which, he need hardly say, would materially increase the economical development of the mine. As to the debentures, he omitted to state that debentures to the amount of 6000*l.* had been promised to be taken up, although 16 bonds, amounting to 160*l.*, had been withdrawn, but for those the directors had become liable. He then moved that the report and balance-sheet be received and adopted.

Mr. TIPPER seconded the proposition.

The CHAIRMAN mentioned that Mr. Arthur Morgan had agreed to further reduce his salary one-half.

The motion adopting the report and balance-sheet was received and adopted.

The CHAIRMAN said he had much pleasure in proposing the election of Mr. Milnes as director, having done so much for the company from its formation.

Mr. SCOTT seconded the proposition, which was put, and carried unanimously.

Mr. MILNES having thanked the proprietors for this mark of confidence, stated that he had friends who were prepared to come forward with a large amount of money for the benefit of the company. (Hear, hear.)

Capt. JONES, in reply to questions, stated that he had no doubt as to the eventuality

value of the property when the depth had been attained. He had worked in the Terrible ten months, and had been through the Pelican and other mines, and he found the deeper the explorations were extended the richer he found the ore and the more profitable the results. Having at some length explained the different points of operation (as set forth in his printed report) stated that from the nature of the ground in the adit, and its general indication, he had no doubt of striking a rich deposit of ore. The ground was very congenial for rich mineral in the eastern ground. The lode in the whim-shaft had improved in size and character. He had seen some good ore coming out of the shaft, and in addition to the general indications a little water was coming out at the bottom—a most favourable feature. He also believed that in the Daniel Peters Mine the lode would likewise improve in depth, and that it would prove a really good mine.

Mr. ORCHARD, who had resided at Georgetown for some months, fully corroborated the remarks and opinion of Capt. Johns. In Silver Plume they had a splendid lode, and the mine was only a stone's throw from Snowdrift. They had also let Silver Plume on tribute for four months, but they were doing contract work as well. In the fifth level good ground was being opened out, and he had no doubt whatever the same result would be obtained at Snowdrift.

Mr. ORCHARD stated, in reply to questions from a director, that the Terrible Mine was distant from Snowdrift about one mile east, and the Pelican within a few hundred feet; the latter had given a profit of \$500,000, and the Maine Mine was still nearer Snowdrift, the whole being on the south side of the mountain. The Pelican Mine began working in 1871, and had since returned the large profit he had stated. It was commenced to be worked by two poor men, who worked, as it were, from hand to mouth, and the only reason that mine was richer than either Snowdrift or Silver Plume was because of its greater depth. The Pelican was in the bed of the gulch, whereas the others were 200 or 300 ft. above. He had no doubt as to the result of Snowdrift. (Hear, hear.)

A vote of thanks to the Chairman and directors closed the proceedings.

THE EXCELSIOR MINING COMPANY.

An extraordinary general meeting of shareholders was held on Monday, at the offices, Gresham House, London, in order to confirm the special resolutions, changing the constitution of the company, passed at the meeting held on Dec. 1.

Mr. MATTHEW GREENE was called upon to preside.

The notice calling the meeting having been read,

The CHAIRMAN put the following resolutions *seriatim* to the meeting, which were duly seconded, and carried unanimously:—

1.—That the Excelsior Mining Company be converted into a Limited Company, under the provisions of the Joint Stock Companies Acts, 1862 and 1867.

2.—That the name of the company be "The Excelsior Tin Mining Company (Limited)."

3.—That the capital of the company be 18,000 shares, divided into 12,000 shares of 1½. 10s. each.

4.—That the shares in the limited company be divided among the present shareholders in the Excelsior Mining Company (Limited), in proportion to their present holdings—share for share—and that the said shares be credited with the sum of 10s. per share paid thereon, leaving a further sum of 1½. per share to be called up as required, in sums not exceeding 2s. per share at a time.

It was resolved that Messrs. T. J. Conyn, J. H. Hitchens, and J. B. Freeman be a committee to draw up the Articles of Association of the Excelsior Tin Mining Company (Limited), and superintend the registration of the company.

A vote of thanks to the Chairman terminated the proceedings.

NEW GREAT CONSOLS.—At the general meeting, on Monday, the report of the directors and balance-sheet were received and adopted. Special resolutions were passed for the purpose of amalgamating this company with the West Great Consols. The amalgamated company is proposed to be registered with a nominal capital of 185,000, divided into 65,000 shares of 3s. each. This arrangement, it is urged, will be most beneficial, and attended with various economical results. The liquidation will be conducted without expense, and the establishment of the new company will take place simultaneously with the passing of the confirmatory resolutions. The terms of the amalgamation have been based upon the actual expenditure which has been made, and the great value of the ore already discovered in New Great Consols.

WEST TOLGUS.—At the two-monthly meeting, held on the mine (Mr. Taylor presiding), the accounts showed a loss on the two months of 680*l.* To meet this a call of 30s. per share was made. The agents—Capts. John Hancock, William Gribble, and James Vigers, say—"We estimate that from these stopes we shall raise 55 tons of ore per month, worth about 250*l.*, in addition to our present returns, which will nearly cover the monthly cost of working the mine, inclusive of new machinery. The effect of this improvement will not, however, be felt until the account for January and February months. The ore sold for November and December have realised about 212*l.* The working costs of the mine will be the same as they have been, besides a charge of about 200*l.* for new dressing machinery, &c."

Lectures at the Royal School of Mines.

ON HEAT.

In his fifth lecture, Dr. GUTHRIE dealt with "Boiling and Radiation," as follows:—"When a liquid receives such a quantity of heat so rapidly, its cohesion is so diminished that its tendency to form vapour overcomes the pressure of the air; bubbles of vapour are formed in the liquid, and it is said to boil. The commencement of boiling, of course, is simmering, and the phenomenon of "singing" of the kettle before it commences to boil is due to the rapid ascent of small bubbles of steam formed in the lower portion, which collapse as they ascend, and the shocks thus given to the surrounding water and thence to the air give rise to the singing sound. A regular succession of bubbles may rise from a rough surface or object in the vessel, and these rhythmically following each other: more rapidly than 16 per second give rise to a musical note. To measure the pressure of the air, and the temperature at which water boils, an instrument known as Mariotte's boiler is used: it is a copper boiler, with a tube at the top, which dips down into mercury at the bottom of the vessel, and which water is placed. In the space above the water the bulb of a thermometer passing through the side of the vessel is placed. Then, when heat is applied, and the water begins to boil, the mercury is found to rise in the tube, and as the steam cannot escape the pressure on the surface is constantly accumulating, as is seen by the rise of the mercury in the tube. The higher this rises the higher it is found by the thermometer indicated by the thermometer, so that by means of the tube and the thermometer you get an exact measure of the pressure exercised by steam at certain temperatures. By relieving the pressure with the mercury in the tube the thermometer will fall. The ordinary pressure of the air water boils at 212°F. or 100°C. or 373°F. At the top of hills it boils at a lower temperature; at the top of mountains you may boil the water, but you cannot get it, if free to evaporate, to a temperature sufficient for cooking food. Thus, by increasing the pressure one can increase the temperature at which water boils, and by diminishing the pressure one can lower that temperature. Here I take some alcohol at about blood heat, and place it under the jar of an air-pump, and now I will diminish the pressure upon the surface of that liquid by drawing out some of the air, and presently you will see the alcohol begin to boil. The fact is you are altering one of those three forces which were before keeping the liquid in equilibrium, you are altering the pressure of the air, which is restraining it. The water in this glass flask is boiling, and the upper part is now filled with steam, which steam has expelled the air. I shut this cock, and remove the flask. By cooling the upper part of this flask I condense some of the steam, and the pressure on the surface of the liquid is relieved. I place my hand on the flask, and you perceive the liquid begin to boil. I added no more heat; in reality, I withdrew heat. What I did was to condense a portion of the steam; thus relieve the pressure on the liquid, and enable it to rise as vapour. I plunge the flask into cold water, and you perceive a brisk ebullition commences, and is continued for some time. So in our experiment with the cryophorus you will remember that by means of a freezing mixture we relieved the pressure upon the surface of the water in a neighbouring vessel; the water was allowed to evaporate, and it did this so rapidly as to become converted into ice. Here is a similar experiment: a little water is placed in this porous cup, that is placed over strong oil of vitriol, which latter substance has an exceedingly strong affinity for the vapour of water: the whole is placed under the receiver of an air-pump to remove the pressure of the air. Vapour is formed, and is instantly condensed by the sulphuric acid, and after a time, if the vacuum be continued, the remainder of the water in the basin will be converted into ice. To prove once for all that the atmosphere presses seriously upon bodies, and that it requires a considerable elastic force on the part of steam to resist this pressure, this tin vessel, weaker than the glass one in a previous experiment, is now filled with boiling water and steam. I shut off the cock, and condense the steam in the upper part of the vessel by pouring cold water on it, and in a minute you see the vessel is crushed in.

Different liquids have different boiling points, just as we saw water, alcohol, and others had different vapour tensions—that is, they are prone to rise as vapour with different powers, and that is to some extent dependent upon their chemical composition. The temperature of the boiling point depends also, as we have seen on the pressure, and also on the nature of the surface of the vessel in which it is heated. Water, of course, evaporates at temperatures below 100°C.; when the containing vessel (one of silver was used in the experiment, and its image thrown on the wall) is at a high temperature, the liquid does not come into contact with the surface of the vessel, it assumes what is known as the spheroidal state. Some of the water is evaporated so rapidly as to form a kind of cushion of steam between the globe of water and the surface. As the temperature of the metallic vessel falls, it at last reaches a point where the globe of water comes in contact with it, and the liquid is then quickly converted into steam; this condition is sometimes supposed to be the cause of many boiler explosions; a boiler is accidentally left to get dry; when the water is first put into it there is no evolution of steam owing to the water assuming the spheroidal state, but as the boiler cools the water comes in contact with the hot surface; a sudden evolution of steam ensues, and a dangerous explosion may be the result. Here is a little model copper boiler, lined with silver, which I heat nearly red-hot, and while so I put some water into it; I then withdraw it from the flame, and cork it up, and in a moment the cork is driven out with a sudden rush of steam. Blacksmiths are careful to have the water they use quite clean, not distilled water, but clean spring water; if the water is soapy, the metal does not touch the water, and it is not cooled sufficiently rapidly. This is a large vessel of water, into which I will pour some soap solution, and now I plunge a red-hot ball into the mass, and you see it glowing in the midst of the water, and it is still red-hot when I draw it out again. The metal has not really come in contact with the water, but has blown out around it a soap bubble, as it were, which prevented the contact with the water.

With regard to the rate at which radiant heat travels through space, the best measurements are those which depend upon the intimate connection between light and heat. The moon comes between the earth and sun; its shadow falls on the earth, and the sun is eclipsed; the instant the moon is seen beyond the sun, at that instant radiant heat is felt, so that, as far as the distance of the moon from the earth is capable of telling us, heat and light travel at the same rate. Light travels at the rate of nearly 200,000 miles per second. When heat travels by convection it

travels as fast as the body which holds it travels; when it travels by conduction it travels at a slower rate. The rate at which heat is conducted along a bar of silver, which is the best conductor, may be measured in inches, at a second, or minutes, whereas for radiant heat we must use miles and seconds. Radiant heat is supposed to be a rhythmic agitation or undulation of some medium which pervades all space. Some suppose that this medium—the ether, as it is called—pervades also all solid and liquid bodies; others suppose that it only pervades what is called empty space; and that when this ether in agitation meets with matter—solid, liquid, or gaseous—it communicates peculiar vibrations to this matter, and these vibrations are conveyed by the matter itself through its own mass. This long India rubber band, which is fastened to the corner, will serve to illustrate the propagation of wave motion. [The lecturer struck the band, and a wave was seen to run up to the end of it, and there to be reflected and run back again.] No matter travels from my hand but a condition or state, and that is a condition of displacement at right angles to the direction of the wave, because I strike the band in a direction at right angles to the length of the band. The waves in this case are called transversal, and the wave motions of light and heat are supposed to be likewise transversal. In the case of sound, the motion is backwards and forwards, or longitudinal; you may imagine that I hit this band many times in a second; then there will be numerous waves following one another along the band. The radiant heat which strikes a body meets with various fates. In the case of a slab, with smooth parallel faces, a system of undulations of the ether, which we may call a "ray" of heat, strikes the surface; if the slab be of metal, some of the heat will be reflected, but for the most part it will enter the body, and remain there warming it. If it strikes some other substance, as glass, for example (although it is not the best for the illustration, rock salt being the best), the heat travels through the body and passes out, if it strikes the first surface obliquely in a direction parallel to that in which it entered, but not exactly in the same straight line, so that if we suppose those rays of radiant heat, one may be reflected, one absorbed, and one transmitted.

With regard to reflection, I need only refer to one general law—whatever the angle at which the ray strikes the surface, the angle of reflection will be exactly equal to it; and in the second place it will be in the same plane. Before I prove that radiant heat obeys this law, I must refer to a means for detecting small quantities of heat. It is found that when a current of electricity passes through a wire above an electric needle, from south to north, then the north end of the needle will turn to the west. Again, it is found that if two dissimilar metals are heated at their point of contact, a current of electricity will pass along a wire joining the other ends of the metals. If I take a bar of bismuth and a bar of antimony (these two metals being found to be the best for the purpose), and bring them together, and then heat the junction, a current of electricity will pass across the junction from the bismuth to the antimony, and along a wire joining the other ends. This latter wire in the instrument we are to use—called a thermo-pile—which consists of a number of bars of antimony and bismuth connected together, is coiled round a frame in which a magnetic needle swings. A kind of hood is placed over one face of the pile to collect and concentrate the rays of heat. The other face is protected, and now the heat of my hand or of a candle near the face is shown by the movement of the needle. To prove the above law of reflection, I reflect the light of the candle from this tin plate, and then turn the hood of the pile so as to receive the light, and the needle shows that it has also received heat, the direct heat being directly screened off. Here are two spherical concave mirrors, with faces of polished metal. If the above law of reflection be true, it can be proved geometrically; all parallel rays falling on the mirror near its centre point will be reflected to a point, and this point is well known to you, namely, the focus of the mirror. And if a source of light or heat be placed in the focus, the rays will be reflected in a direct parallel to the axis of the mirror. We have two mirrors facing each other, concave mirrors, rays from a light or heat-giving body in the focus of one (being screened from radiating directly on the other mirror) will be reflected parallel, will strike the second mirror, and be collected in its focus. In the focus of one mirror I place a red-hot copper ball; in the focus of the other a piece of gun-cotton, and you see the cotton is readily inflamed. The power which metal surfaces have of reflecting heat is well known to you, in the case of Dutch ovens, &c.; and the explanation of the experiment according to our reasoning is, that the rays of heat, as they strike the metal, are reflected in a direct parallel to the axis of the mirror. When experiments were first made on the reflection of heat, people at once tried to prove that cold was reflected in like manner. We do not recognise the existence of cold as a thing or state; we only recognise it as the absence of heat, and getting cold is only the loss of heat. Into the focus of one of these mirrors I put a mixture of ice and salt; in the focus of the other the hooded face of the pile, and the movement of the needle declares the face of the pile to have been cooled, and at first thought it might appear that cold had been reflected, and we have to explain the experiment according to our reasoning, cold as merely the absence of heat. Scientific men have been induced to look upon the state of matter with regard to heat in this way. It is supposed that every body is giving out heat to every other body, and in this way, in the case of two bodies at the same temperature, each is supposed to give out exactly as much heat as it receives; this is the theory of exchanges. I hold my hand near a candle flame, and feel it warmed; in this case it is supposed that my hand receives more heat than it gives out, but still it is giving out heat then as much as when I hold it near a piece of ice; only in the latter case I feel it cold, because my hand receives less heat than it gives out. Now, we can explain this apparent reflection of cold in strict accordance with our view of cold. The face of the pile is giving out heat to the ice, and there the heat is rendered latent by liquefying the ice; the pile radiates more heat than it receives, and thus is really cooled. There is still another point with regard to the radiation of heat from various kinds of surfaces. Here are two saucers—one quite bright, the other black and sooty; at the commencement of the lecture both were filled with cold water of the same temperature, and then they were set side by side on this hot metal plate. Now, on testing them both by means of the differential thermometer, we see that the dark vessel is the warmer—i.e., it has absorbed most heat. The bright vessels have reflected a great portion of the heat which fell upon it; the black one has absorbed it. Here are two similar saucers—one bright, the other black and sooty, which at the beginning of the lecture were filled with hot water at the same temperature, and now testing the water in each by the differential thermometer, we find that in the bright vessel is the warmer. Hence it appears that the same peculiarity of surface in the bright vessel which prevents it from receiving heat also prevents it from giving it out, and vice versa. You find that a new kettle, set on a clear fire, takes longer to boil than a sooty one does, which is quite in accordance with the above facts.

WHEAL OWLES.—A share in this mine (in 80 shares only) rarely comes into the market, but one was sold by auction at Penzance a few days since at 131*l.* The mine is situated in the parish of Brynford, Flintshire, and is worked by Mr. J. H. Hitchens, who is obliged to stop the tin ground above very rapidly than the manager could wish, in order to bring both ends to meet as possible—a rather difficult matter now-a-days. In fact, on many mines in too many cases the ends are all but stopped, in order to meet the cost. We think we have known these shares at 300*l.* and above.

LEVANT (St. Just).—There was an important addition to the works of this extensive concern on Saturday, when the man-engine was set to work. It will enable the miners to descend with great facility to work the deep levels, especially the 150, 170, 200, and 210 ft. levels, which contain some of the richest ore ground available. These submarine galleries extend nearly one-third of a mile out under the bed of the Atlantic Ocean. An adventurer writing from St. Just says—"It seems a great pity that the man-engine was not arranged and put in good order some months ago, as it has been such valuable time has been lost. It was well known that the mine was rich, but the great difficulty was made available, consequently the manager of the mine must not find fault if expectant shareholders complain of this portion of the works having been delayed until now." Within the past few days a rich tin and copper lode has been intersected in a cross cut at the 210 ft. level. This is said to be lying all in whole ground, and will be easily discovered in the 150 and 170 ft. levels.

PROVIDENCE.—Messrs. Higgs and Son (the pursers) write—"We have the pleasure of stating that the lords have readily assented to the application for a remission of dues during pleasure to assist in developing the mine. We are sorry to hear that a call will again be required at the forthcoming meeting."

IMPROVEMENTS IN STONE-CUTTING MACHINERY.—The object of the invention of Mr. GEORGE STACY, of Rockland, New York, is to adapt the cutting action to the nature of the material to be acted on, and consists in having the cutters mounted in stocks, which are connected by hinged joints forward of the cutting edge of a rotary shaft, and at a distance from the axis of rotation not much less than the cutting edges in combination with a stop to limit the distance from the cutting edge shall be carried from the axis of rotation, with or without a spring to force the cutter out against the gauge stop. The mode of operation resulting from this combination is that the cutter can yield when the stone requires it, and finally by successive cuts remove the refractory parts, the stop gauging the ultimate depth of cut so that the surface of the stone can be dressed to a proper and even surface, no matter how much it may vary in texture. Another improvement consists in combining with rotating cutters so mounted an intermittent feeding mechanism so organised that each cutter shall act more than once on any one part of the stone as desired. Another improvement consists in so securing the cutters in a recess in the stocks that they may be readily changed, or their tangent position altered.

WOOD PAVEMENT AND ASPHALTE.—It appears that the enthusiasm in favour of the new wood pavement as the rival of asphalt has taken some of the advocates in advance of facts. It was recently stated that "more than a quarter of a century ago Claridge's asphalt, as it was then called, and somebody's wood block paving were in like manner struggling for mastery in the streets of the City, but Claridge's, if we remember rightly, were in the holes, and had a disgusting habit of yielding under the soles of our feet on a hot day." As this statement, so far as it applies to Claridge's Patent Asphalt Company's material (in which no alteration has been made in the manufacture of it since it was first introduced in 1838), is deemed damaging to the interests of the company, the secretary, Mr. J. Farrell, desires its immediate contradiction. No experiment of the kind was ever made in the City; and as to the effect you state was experienced, you have only to examine the asphalt laid by this company in Trafalgar-square, or the carriage way of the archway at the Horse Guards, both of which have been in daily use for 10 years, to satisfy yourself that the material does not "wear into holes," nor has it a disagreeable habit of yielding "under the soles of our feet on a hot day." The excellence of good asphalt, properly laid, has always been maintained in the Mining Journal.

ECONOMISING FUEL.—A funnel-shaped apparatus is, according to the invention of Mr. J. STAMER, of Altona, Germany, provided with a valve, or hinged plate, to be applied beneath the fire-box of furnaces for the introduction of a very strong current of air, which, in the case of locomotive furnaces, is produced by the resistance offered by the air to the engine, thereby causing almost complete combustion of substances and gases wasted by the arrangements now used.

THOSE WHO HAVE MOST PATIENTLY AND PERSEVERINGLY STUDIED human physiology have now concluded that in the nerves lie the centre of action, the spring of movement and regulation of vital functions. In variable and relaxing weather Holloway's remedies are especially serviceable in maintaining nervous vigour, and in defending the frame against ill consequences from damp, cold, or chills, or the most violent symptoms of indigestion and judicious treatment, not only will future danger be averted, but old ailments will give way, and better health will be attained than was enjoyed before the illness. No treatment for safety and certainty of success may be so confidently relied upon as that discovered by Prof. Holloway, whose pills and ointment always restore the sufferer.

THE ST. LAWRENCE, VICTORIA, AND VALENTINE AMALGAMATED MINING COMPANY (LIMITED).

Registered under the Joint Stock Companies Acts, 1862 and 1867.

Capital £12,000, in 6000 shares of £2 each.

Of which 1000 are now offered for subscription, payable as follows:—

On application	10s.
On allotment	10s.
Three months after allotment	10s.
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OFFICES—164, GRESHAM HOUSE, OLD BROAD STREET, LONDON.

PROSPECTUS.

This company was formed for developing and working three adjoining mining properties, formerly carried on as separate mines, and known as the Victoria, Valentine, and St. Lawrence Mines, situated in the parish of Brynford, Flintshire. The turnpike-road to Holywell passes through the sett, which is within two miles of that town, where there are extensive smelting works.

These amalgamated setts form a valuable mining property of more than 100 acres, the two first named being held under the Marquis of Westminster, for a term of about 22 years, at a royalty of 20s. per ton, the latter for the same period from Richard Williams, Esq., of Glynn Arthur, near Denbigh, at a royalty of 10s. per ton, there is no dead rent whatever. There are many well known and celebrated lodes in this property, the principal of which form a junction at the southern portion of the sett, as shown in the plan, where also the Hundred Pound lode falls in.

Since the formation of the company the directors have been engaged in carrying out these several mines. On the Victoria lodes they are sinking a new engine shaft, which will be of great service in working the whole sett. From the Valentine lodes a cross cut has been driven north-west about 45 ft., at a level of 68 ft. deep, which will come under the new engine-shaft at Victoria, and lay open the large reserves of ore reported to be there. This cross cut has, in its course, intersected numerous strings or veins of lead ore, all of which are left standing; a large extreme end has cut into a lode running north-east by south-west, extending the whole length of the sett, from which some very good ore has already been raised. At St. Lawrence, in driving along the lodes a considerable quantity of ore has been raised. The directors are now sinking a shaft on these lodes to enable them to obtain the ore in greater quantities and more economically. This shaft is going down on a lode 3 yards wide, of a very promising character, and producing large amounts of ore.

Since the month of April last the sales of ore have realised a profit, after providing for the working expenses thereof, sufficient to have paid a dividend on the present issued capital of the company (£4258*l.*), at the rate of about 20 per cent. annum; but, with the view to develop the property and make it a good and safe mine, the directors decided to expend the whole of this sum in the manner detailed in Capt. Wasley's report, which is appended.

The time having now arrived when it has become necessary to erect crushing machinery and dressing floors, the directors have resolved to issue 1000 shares (being part of the capital) to enable them to meet the additional outlay, and to carry on the work of the mine vigorously.

The mines are worked in the most economical manner, as no machinery is required for pumping, the whole of the water being carried away by swallow holes or natural cavities in the rock. The manager is so confident in the ultimate success of the mines that from the commencement of the operations he has taken no still desires to take, his salary in paid-up shares. The largest shareholder in the company lives close to the mines, and gratuitously acts as purser.

The appended reports from Capt. John Pryor and Capt. W. Wasley enter into details, and attest to the great present and prospective value of the property, and the directors decided to expend the whole of this sum in the manner detailed in Capt. Wasley's report, which is appended.

An agreement, bearing date the 10th of January, 1873, was entered into between George John Hamilton, of the one part, and David Forrest, as a trustee of the company, of the other part, for the purchase of the above property for £4258*l.* in cash, and the sum of £2500 in fully paid-up shares of the company, and may be seen, together with the Articles of Association, at the offices of the company. The vendor has agreed to take the balance of the cash price of the mine out of the future profits of the company.

Applications, accompanied by the deposit of 10s. per share, may be made at any time, and will be received at the offices of the company, or at the offices of the company, if no allotment is made the deposit will be returned without deduction.

Report by Capt. JOHN PRYOR, dated 2nd December, 1873.

Agreeably with your request, I have again inspected these mines. I believe now about 12 months since I had the pleasure of doing so, and in my report I have fully entered into the various points of operation, which I do not think it necessary for me to detail again in this. I will, therefore, confine myself to your new important operations, viz.:—

First—The St. Lawrence New Whimsey Shaft: This shaft is down 45 yards to the surface, the bottom of which has intersected the well known Hundred Pound lode. This lode has produced in former times many hundred tons of ore. At point of intersection the lode is very large; in fact, too large to be productive as depth is attained the lode is becoming much more close and more likely to come productive.

The foot wall side of the lode is hard, but for 6 or 8 ft. in. in the hanging side there is a very nice ore producing ground, also the lode is very good. About 6 or 8 yards deeper sinking will bring this shaft down sufficiently deep to communicate with the level being now driven east from the 52 at the Lawrence Whimsey Shaft. When this communication is effected it will enable you to develop the mine to much greater advantage. The lodestuff will be brought direct to surface, thus effecting a saving of both time and money, which is most important, it will thoroughly ventilate the whole mine.

The 52 east out of St. Lawrence Old Whimsey Shaft: This end is, in my opinion, within a few yards of being far enough to be under the shaft now being sunk in the Hundred Pound lode. The ground in which this end is in, at present, is highly promising character, producing some very nice stones of ore, and I believe extended in the present direction a few yards you will meet with a further improvement, and before long will find this lode to be as productive as hitherto would strongly recommend you to continue the driving of this level on the ore of the lode, and as soon as the new shaft is connected with the 52 yard level no better trial could possibly be made than to continue the sinking of this shaft for another 20 or 30 yards; this would bring you into the proper depth in which all our lodes in this neighbourhood become most productive.

At the Valentine part of the sett I should by all means recommend the driving of the old shaft, which would come down over the cross cut in the 68 yards level, and to communicate the same with the level leading towards the Hamilton shaft, which would no doubt drain it, and enable you to drive on the course of the lode. Hamilton shaft is splendidly situated for the thorough development of this lode.

In conclusion, I have no hesitation in remarking that I consider you have a valuable take, and if the before named suggestions are carried out, you will, I think, be handsomely rewarded for your outlay.

JOHN PRYOR

Report by Capt. WILLIAM WASLEY, dated 25th November, 1873.

Since the commencement of operations we have sunk Hamilton's shaft 32 ft. from surface, cut lodge at the bottom, and driven a level from the bottom of shaft to Victoria shaft, which will ventilate the whole of the workings, but water was so strong for the barrels that we were obliged to stop this part of mine, although the lodes and ground looked very promising for making large posits of ore in depth.

At Valentine we have driven the 68 yard level cross cut (all in hard rock) from Valentine lode to the lode running back to Hamilton's shaft, and driven its course towards Hamilton's shaft 5½ yards, but after turning the corner the air got so bad, and the end being about two hundred yards from Valentine shaft, I thought it best to stop the driving for awhile, until the shaft, which is already about 50 yards deep, be cleared up and sunk down near end of the cross-cut (as shown on the plan). This would well ventilate the mine and enable us to draw away the stuff much better, and drive the levels a great deal cheaper. I should strongly recommend that this shaft be cleared up and sunk down to the level, and the level driven to Hamilton's shaft, which would be 30 ft. below the present bottom of the shaft, in doing which I fully believe that valuable runs of ore would be met with, and then sink Hamilton's shaft to the level, and work all the rich lodes dry known to be to the west of Hamilton's shaft.

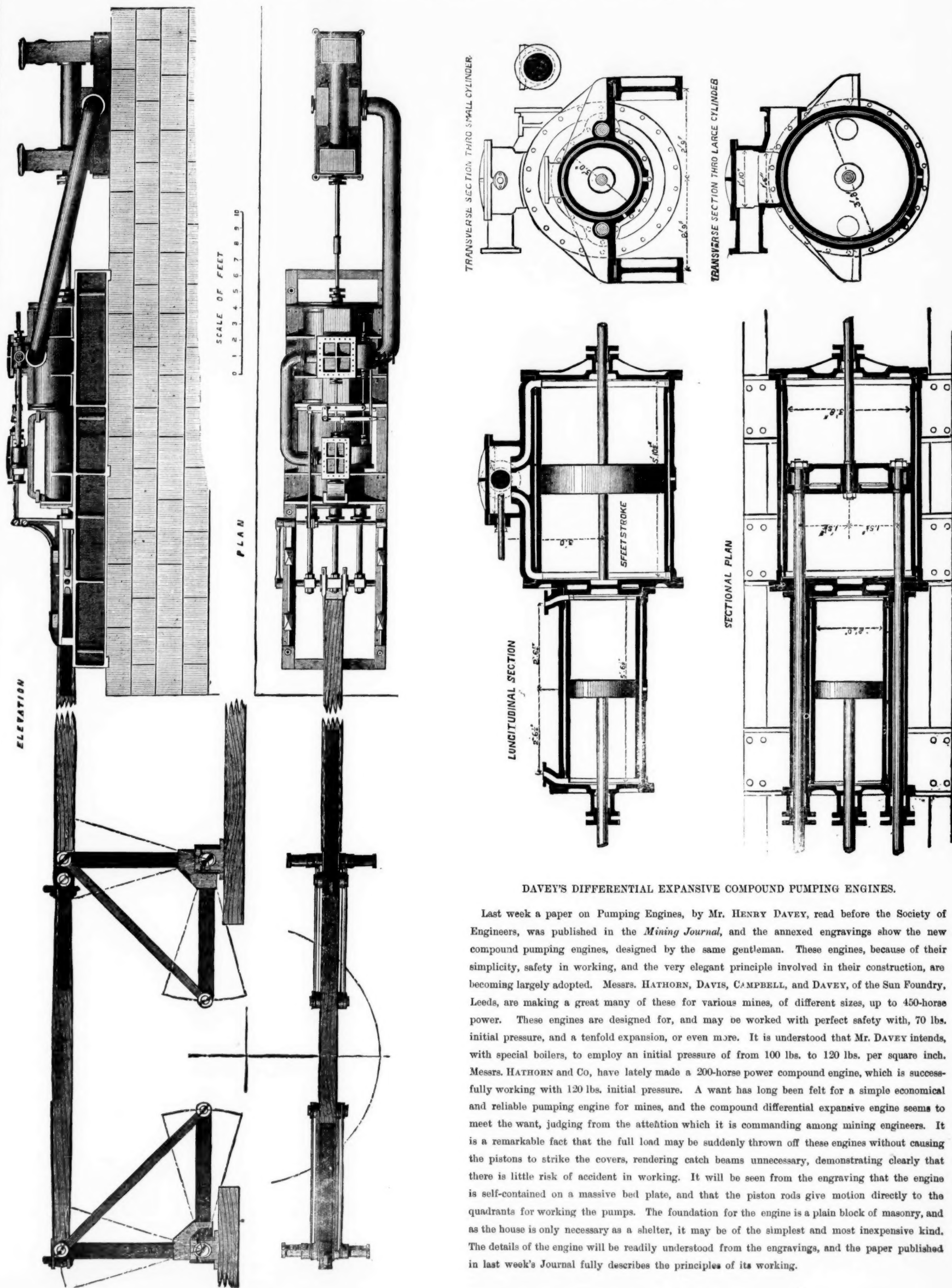
At St. Lawrence we have cleared and repaired the winding and footway shaft to the 52 yard level, and driven several yards on the course of the lodes, and a good run of ore, from which we have raised over 50 tons; but, seeing that there was some way from the shaft, and dipping below the level, and the air was so bad, I thought it best to stop working here, and put the men to sink a new shaft to drive down a little way to the east of the run, as the ore is dipping in that direction. This new shaft is now 45 yards deep, and is within about eight yards of being to the level, and when it is holed will well ventilate the whole of the workings, and we shall then be able to draw the stuff direct to surface; and, from the appearances of the lodes, I fully believe we shall soon open up a first class mine, as the lodes are close to each other, and easy to work; and, as they all drain natural swallows, the cost of working the mine is but trifling compared with where expensive engines, &c., have to be erected. In conclusion, I do not believe a mine in Wales that can be more easily worked, or with better prospects of becoming a good dividend-paying concern, if worked as it deserves to be.

WILLIAM WASLEY

The following mines were received too late for insertion in their proper places:—**WEST CARADON.**—N. Richards, J. Pryor, Dec. 23. In the 55 cross-cut there are indications of a lode or branch lying long. The rise in the back of the level will produce tons of copper ore per fathom. Two stopes east and one west of cross-cut will yield in the aggregate 7 tons per fathom. In the 42 cross-cut north we have cut a branch, composed of fluor-spar and yellow copper ore, which shall not open out on this branch at present, as it is important this cross-cut shall be forced on to reach the main lode as soon as possible. The 30 ft. level is being urged on towards Hallett's cross-course as fast as the nature of the ground will admit. A stop in the bottom of this level will yield fully 3 tons per fathom. **WHEAL PHRUS.**—J. Tregay, Dec. 24. The lode in the new shaft is worth 20*l.* per fathom. The lode in width sinking below the 30 is worth 40*l.* per fathom. We are clearing the deep drift rapidly, having now got forth to the Stone shaft, and are erecting a whim thereon.

COMPOUND DIFFERENTIAL PUMPING ENGINE. NEW HARTLEY PITS.

MESSRS. HATHORN, DAVIS, CAMPBELL, AND DAVEY, ENGINEERS, LEEDS.



DAVEY'S DIFFERENTIAL EXPANSIVE COMPOUND PUMPING ENGINES.

Last week a paper on Pumping Engines, by Mr. HENRY DAVEY, read before the Society of Engineers, was published in the *Mining Journal*, and the annexed engravings show the new compound pumping engines, designed by the same gentleman. These engines, because of their simplicity, safety in working, and the very elegant principle involved in their construction, are becoming largely adopted. Messrs. HATHORN, DAVIS, CAMPBELL, and DAVEY, of the Sun Foundry, Leeds, are making a great many of these for various mines, of different sizes, up to 450-horse power. These engines are designed for, and may be worked with perfect safety with, 70 lbs. initial pressure, and a tenfold expansion, or even more. It is understood that Mr. DAVEY intends, with special boilers, to employ an initial pressure of from 100 lbs. to 120 lbs. per square inch. Messrs. HATHORN and Co. have lately made a 200-horse power compound engine, which is successfully working with 120 lbs. initial pressure. A want has long been felt for a simple economical and reliable pumping engine for mines, and the compound differential expansive engine seems to meet the want, judging from the attention which it is commanding among mining engineers. It is a remarkable fact that the full load may be suddenly thrown off these engines without causing the pistons to strike the covers, rendering catch beams unnecessary, demonstrating clearly that there is little risk of accident in working. It will be seen from the engraving that the engine is self-contained on a massive bed plate, and that the piston rods give motion directly to the quadrants for working the pumps. The foundation for the engine is a plain block of masonry, and as the house is only necessary as a shelter, it may be of the simplest and most inexpensive kind. The details of the engine will be readily understood from the engravings, and the paper published in last week's *Journal* fully describes the principles of its working.

BRITISH MINES.

than I anticipated when I wrote my last report. The slopes in the back of this level are without alterations, worth from 3¢ to 4¢, per fathom.—Middle Lode: The lode in the 40 west is split by a horse of killas, present value about 3¢ 10¢. per fm.; on Saturday last it was worth 8¢. per fathom, and no doubt but what it will improve again shortly; the rise in the back of this level is unproductive. The slopes east of the rise are worth on an average 7¢. per fm. We are calculating another parcel of

RHEIDOL.—John Ridge, Dec. 26: Setting Report: The deep adit level to drive west on Rharygas lode 2 fms., at 7 ft. per fathom; lode 3 ft. wide, yielding very fine strings of lead ore. The end is very hard and letting out water, and appears

derived by the merchant princes of Cornwall, the Daniels, the Leimons, the Williams's, the Harveys, and many others we could name were incredibly great. Mr. Daniel at one time was taking up a guinea per minute, so to say, inundated with

FOREIGN MINING AND METALLURGY.

Copper has continued to decline upon the Paris market. Chilean in bars has made 87½; ditto, in ingots, 93½; tough English, 93½; and Corocoro minerals, 90½, 10s. per ton. At Marseilles business in copper has been quiet; prices have, at the same time, been improving. Spanish in plates has made 84½; and small refined ingot, 90½. The price of tin has been hardening at Paris, and has rapidly advanced under the influence of a good consumptive demand. Banca, delivered at Havre or Paris, has made 128½; Straits ditto, 128½; and English, delivered at Havre or Rouen, 123½ per ton. Tin has been rather well maintained upon the Marseilles market. At Rotterdam tin has been slowly but surely advancing. Banca has brought 71 fls. to 71½ fls. Some parcels of Billiton, which have recently arrived have given rise to transactions at 70 fls. Considerable purchases of tin are stated to have been made at Rotterdam on English account. The favourable tone of the other European markets has made its influence felt in Germany, where the article has regained a good demand at fully former rates. Lead has remained without change at Paris, and business generally has been rather quiet. French lead, delivered at Paris, has made 24½; Spanish lead, delivered at Havre, 23½, 18s.; English ditto, 24½, 8s.; and Belgian and German ditto, 24½, 8s. per ton. At Marseilles a reduction of 1½ 4s. per ton has been made in plates and sheets. In Germany lead has been firm; but few large transactions have been reported. Zinc has been quiet at Paris and Marseilles. Vieille Montagne in sheets has made 36½ per ton.

The reduction which has taken place in the price of combustible begins to make its effects felt in metallurgical industry. Pig and iron has been decidedly declining in price, and this reduction reduces hopes of a more or less early revival in affairs. Of this revival the works stand at present in rather pressing need. It is necessary, nevertheless, that stability and unity should be established in tariffs before industrials can expect to receive serious orders for next year. While prices remain nominal and variable, comparing one establishment with another, it is certain that clients will continue to show hesitation, and that they will await a more clearly defined state of affairs. They will also wait for some check in the retrograde movement before giving out orders. Meanwhile the market remains heavy, and transactions are rare, and of little importance. There is some talk of a reduction in the number of hours during which Belgian ironworkers will be employed, and of an eventual reduction in wages. Some works have already commenced this movement, which has been accepted without many complaints on the part of the workpeople, who understand the difficult position in which their employers are placed. Refining pig has been dealt in readily at from 3*l*. 16*s*. to 4*l*. per ton. Casting pig, No. 5, has made 5*l*. 12*s*. per ton. No. 1 iron has been selling at 9*l*. 4*s*. to 9*l*. 12*s*. per ton, and No. 2 plates at 13*l*. to 14*l*. per ton. The Charleroi United Collieries Company will pay (Jan. 2) a dividend of 1*l*. per share for 1873.

As regards the French iron trade it may be observed that the North of France now maintains half its productive force, while the South, in which the state of affairs is better, preserves at least two-thirds. All the works which manufacture steel are well employed, while the foundries, the manufactories of heavy plates, and the rolling-mills turning out merchant iron remain in a suffering condition, and require a renewal of orders. In the department of the Nord the price of iron ranges from 10*l.* 8*s.* to 10*l.* 16*s.* per ton, according to the importance of contracts; No. 2 plates have been quoted at 14*l.* 8*d.* to 14*s.* 12*s.* per ton. In the Meurthe-et-Moselle white pig is sustained at about 4*l.* per ton, while speckled pig has made 4*l.* 4*s.* per ton. At St. Dizier quotations are nominally sustained at 4*l.* 8*s.* to 4*l.* 12*s.* per ton for coke-made pig, and at 6*l.* 4*s.* to 6*l.* 8*s.* per ton for charcoal-made refining pig. First-class rolled iron has been selling at 10*l.* 12*s.* to 11*l.* per ton. The Grenid Combe Mines Company has been paying a dividend of 1*l.* 12*s.* per share during the last few days.

The Belgian coalowners have been openly consenting to reductions in prices during the last few days. This fall has not taken place without good and sufficient cause. The state of the iron trade has become even more depressed, and stocks of coal are increasing with rapidity. At the close of last week they exceeded 350,000 tons in the Charleroi basin, and they must be further increasing, as deliveries have been falling off. The sugar manufactories and the rolling-mills have been buying scarcely any coal, the rolling-mills are taking very little, and Paris is well supplied. It is accordingly not without uneasiness that Belgian coalowners are awaiting the period for the renewal of contracts. The wages of working miners are being reduced from 10 to 15 per cent. in the Charleroi group, and this reduction is stated to have been consented to without observations on the part of the men, who see considerable stocks accumulate at the pits' mouths. In view of the reduction of coal in Belgium, it is expected that the agglomerates manufactory of M. Dehaynen, at Marchienne, will be shortly re-opened. At Liège the coal trade exhibits the same tendencies as in the other Belgian basins, and there are the same apprehensions as to the future, as very few contracts are renewed for next year. Business has, nevertheless, been done in coking coal at 17s. 6d. per ton. Freight has been falling. The complaints made as to want of trucks on the railways have become fewer of late.

The fall in coal which has been noted in France has been gradually extending of late. In the basins of the Nord it is now general, and tariffs showing a reduction have appeared. In consequence the reduction in small coal an agglomerate manufactory at Erquelines has resumed operations. At Paris, the return of cold weather has occasioned some demand for domestic qualities of coal, but prices have not revived, and the demand for industrial qualities has not at all increased. Stocks have been growing from day to day at Paris, and the French capital is now more than sufficiently supplied. The basin of the Loire begins to feel the effects of the reduction in prices. At any rate, as regards inferior qualities of coal, everything seems to point to a continuance and even an acceleration of the present downward movement in coal. It appears that the production of coal in France, which stood at 13,400,000 tons in 1869, increased in 1872 to 15,900,000 tons. The commission appointed to consider the coal question in France has had under consideration the non-working of 123 coal concessions.

MINERAL WEALTH OF MONTANA.—Referring to the inexhaustible mineral wealth of the territory, Major Maginnis, in an address delivered before a local association, stated that last year the product of the placer mines reached the sum of \$8,000,000, and this year the product will be quite as large. Nor is there any fear that this industry will dwindle in the future. No, not for the next 50 years. As old ground is exhausted new placers are found. As old methods fail the flume and hydraulic become profitable. As old owners die, of course, fewer owners, and not so much free and lavish expenditure as in our own times, but the average yield will be nearly the same as now for many years, and the number of men engaged in placer mining will never be less than now. Indeed, mines will be worked that now lie idle, and to prevent the wholesale gobbling and pre-emption of those which are now going on, closing miners out of diggings in which they might at least make winter expenses, and put many a dollar in circulation, he thinks the present Mineral Land Act ought to be amended, or in part repealed. As for quartz mining, that can hardly be said to have begun. There are veins enough of gold quartz alone in the Territory to profitably employ twice the number of men now employed in copper mining, and much more than these, or rather before these, come the great silver-bearing lodes, the number, extent, and richness of which are beyond conception, and in which he believes they have the richest territory on the earth.

THE LARGEST PUMPS.—Pittsburgh claims to have in progress of construction a pair of engines which will be the most powerful in the world. Reducing the capacity of some of the largest pumping-engines to a uniform lift of one foot in 200 fathoms, it found that the Lehigh and Zwick engines will lift 3,450,000 gallons a day; the pair at the Chicago Waterworks, 4,500,000 gallons; the pair at Haarlem, Holland, 10,000,000 gallons; while the new Pittsburgh engines will lift 11,240,000,000 gallons. The pair will weigh 1500 tons, and will cost \$425,550. The following dimensions will serve to give some idea of the magnitude:—Crank, 9 tons; shafts, 24 tons; four sections of the two valve chambers, 120 tons; fly-wheel, 70 tons. The four plungers will weigh upwards of 400 tons. Cylinder, 64 inches diameter; stroke, 14 ft.; plungers, 40 inches diameter; 11-ft. stroke. This ponderous piece of machinery will be used to pump the water from the land of the Erie canal, which is at a height of 356 ft. It is estimated it will raise 70,000,000 lbs. of water for each 100 lbs. of coal consumed, the cost being at the rate of 1 cent for 3079 gallons.—*Marquette Journal*.

FOREIGN MINES.

RICHMOND CONSOLIDATED.—Telegram: "Weekly run, two furnaces, \$40,000; mine looking splendid."

GENERAL BRAZILIAN.—Nov. 16: The gold return for October is 449 oits.; this was derived from the canoas for 27 days working of 16 hours per day. In conformity with Capt. Treloar's instructions (Sept. 4), I shall forward to the agents in Rio, on the 12th of next month, all the gold I shall then have in my possession—16 oits., produce for September, 449 oits. for October, and the return for the present November month, which I estimate will be 450 oits. more.

Mr. U. (Silver).—J. Longmaid, Dec. 2: Hauling the machinery from Sandy Station is costing badly, owing to the slippery nature of the roads. We have about one-third of the horse and mule teams in the roads. No wood yet of the round buddles from England; I am making enquiries about them. The dressing-floors are gradually approaching completion, but slower as I have had only eight to ten men for many weeks past. I intend to put on a few men more to-morrow. Three carpenters are making the tanks for the water and slimes, which is the heaviest job of carpenters' work we now have to do; the fourth is fixing the machinery. Our boilers are set, stacked up and braced, and ready to be put in place. The road running from the engine house to the tramroads through it is completed, and about 200 tons of ore in it ready for starting. I hope if the buddles turn up in time another month will place things in a position to start.—Mine: Portland and Sturges' (cross-cunnel) is making slow progress, the ground being hard; we have about 40 to 50 feet more to drive, if the lode holds on at the same dip as above. On the hanging wall lode in No. 1 cross-cut we have driven 60 feet, and the lode looks better than when we first started. It is going south-west is worth 25 per cent. lead at the end. The north-east end is worth 20 per cent. lead, and the middle third the size of the end, but the lode on either side of this horse is fully up to 25 per cent. lead. This ore body or course of ore is now known for certain to be 60 feet, and average 15 feet, height, depth and further length as yet unknown. We have only two men driving, one in either end, two miners rising a winze from main adit to Bull tunnel for sending down ore, and four men driving the Sturges' tunnel. We ought to have a few more miners to push on the ends in the hanging wall lode and put up a few more cross-cunnels to get the present state of our finances. You ought to please continue to raise as fast as you can, for when we commenced dressing we shall have a good many extra expenses.

BIRDSEYE CREEK (Gold).—G. S. Powers, Dec. 3: I last wrote you on Nov. 27, since then I am in receipt of nothing from you. It commenced snowing here this morning, and looks as though we might get a heavy fall of snow which, if it should turn warm, or wind up with rain, will give us a supply of water. The Red Dog Mine is all ready, also Uncle Sam, the Walsala will be ready in a day. Need not wishing little water, we can catch in reservoirs. We are getting a pretty good idea about what shaft, I shall send you statement of accounts. I am very glad to hear of you, and will that, I shall send you statement of the term

for November in a few days, and will then give you the further results or the storm.

BLUE TENT (Gold).—C. W. Tozer, Nov. 25: I have nothing of special importance to communicate at this mine, it is but a repetition for me to say I work at the mine, it is completed, and in an hour or so I am washing on the north side of the dike at South Yuba we have everything done that can be done before completion of bedrock tunnel. Yesterday and to-day have been very rainy days, and give us some reason to think the water season for hydraulic mines is about to commence. In the year 1965 nearly all the mines in the county commenced washing from Nov. 7 to 12. Mr. Powers, of Birdseye Creek, spent a few hours with us at Blue Tent a few hours ago; I am happy to inform you that he expressed himself as highly pleased both with the mine, its natural advantages, and our plans and method of fitting up. The more so because he is a well-known and well-deserved reputation of being thoroughly experienced in hydraulic mining.

BATTLE MOUNTAIN.—Capt. Richards, Nov. 20: The lode in the 113 ft. level, north of the Virgin shaft, assumes more of its regular appearance and is more continuous than in the 73 ft. level. It is suspended for the time. The new whim and new shaft are being got on with. The shaft is being timbered and secured from the 37 to surface, and when completed the mine can be deepened in search of the ore believed to exist below. In the stopes in the back of the 73, near the Virgin shaft, the lode shows a slight improvement, producing some green carbonate and red oxide of copper. In the back of the 37, near the Virgin shaft, nothing is being done at present, but in the back of the 113, south of Termonth's rise, some good ore is being raised. The men who were employed to drive at the 145, north of Pearce's winze, in the bottom of the 113, have been called to stope the lode in the 113, and the men who were employed at the 73, and at the back of the Termonth, some of the ore and some of the men are further improved.

Nov. 27: Virgin: We have not yet examined the shafts numbered 131 and 132, but the new skip is a good one. The Virgin shaft, 113 ft. drift. In the stope, the back, the 73, near the Virgin shaft, the lode is of very large size, being from 20 ft. wide and upwards, spotted with ore of red oxide and green carbonate, which requires a great deal of assorting. In the back of the 113, south of Thermouth's rise, the lode produces some good ore.—Lake Superior: The stope being put over the back of the 135, south of Pryce's shaft, produce some fine stones of ore occasionally, the ledge being several feet wide, and of a very promising

I. X. L. (Gold and Silver).—Mr. L. Chalmers, Dec. 1: The Eschequer Company's mill will re-commence running next Monday. After they have run through some 100 or 150 tons of their own ore they will work what I may have sent down from the I. X. L. by the time they clean up. Since my last report I have cleaned out the north drift from the 200 ft. level and timbered same. I found when we got to the face that the water we tapped in such abundance came from a large cross-course. I have driven 6 feet on the course of the lode through a very soft clayey substance until Saturday night, when we got to quartz again, some pieces of which look well. From the 200 ft. level the north drift is in 39 feet from centre of cross-cut, and the south drift 10 feet. The lode in the south drift is 3 ft. 6 in. wide and should be run upon; at present it is mixed up with porphyry, but some of the quartz strings show ore. I am going to try if I cannot get some ore out of the other lode we cut this week. All the wood for engine and stull, timbers, and lagging for six months are in, still at least some 3 by 4 in. and 4 by 6 for truck and rails and ties, which will all get from Eschequer when they commence sawing. Snow has fallen pretty deep generally for the first time. I hope it will not melt.

ties to pay pretty a centimetry of the first one. I hope it will not be so.

EXCHQUEP (Gold and Silver). — Mr. M. Roche's report told us that the drift mill 26 tons of fair ore, and 10 tons of good ore, this week and last about 40 tons, 26 tons of which is at the mill. The ground stoped measures 21 ft. in height by 14 ft. in length, but it begins to pinch as we rise. We will get it again from the north drift from the 100, at the engine shaft, which is now in 182 ft., 11 ft. having been run last week, and still produce some good stones of ore. The south slope at present is not worth working until we sink our shafts a few more feet. The ore is abundant in the pit I sunk some weeks ago, it will reward you for going after it. In 2 1/2 days this week one man took out only 1 ton. For the last 50 ft. the bottom of the north drift has shown good stones of ore, but it does not rise. I am fixing pumps preparatory to sinking, to the Accacia level, but I am delayed by non-arrival of piping, &c., from San Francisco. So I have ordered today to put up a windlass and set a shaft to work in the drift, and I will have the mill running again, but I am not sure that I will want to keep the mill running as long as I possibly can. I commence running next Monday, but I am working at a very great disadvantage. I will telegraph the bullion product and cost of reduction. Allow me to call the board's attention to Prof. Raymond's last letter, especially to what he says about the ore and the diagnosis derivable therefrom as to the character of the lode. It is some satisfaction to me to find that the opinion of the geologists is in favor of the lode being of great deal above the board see the ore in place which I took out from the 100 ft. level. In taking out it gets mixed up with inferior ore, but in the lode it shows to advantage, and is very encouraging to me at least.

MENZENBERG. — R. K. Roskilly, Dec. 20: Dickinson's Engine-Shaft. The cutting of the plat at the 30 is being pushed on, and good progress made, and we calculate to have the same completed in the time mentioned in my former report. We are getting on well in boring the rod plates, &c., and all other work

FORTUNA.—Dec. 17: The lode in the 110, west of Henty's shaft is improved in value, and has a promising appearance, yielding $\frac{3}{4}$ ton of ore. In the 100, west of Henty's shaft, the lode is very small, yielding $\frac{1}{8}$ of ore. In the 80, west of Henty's cross-cut, the men are cross-cutting south to prove whether there is any more lode standing there. The lode in the 80, west of Kennedy's shaft is strong, containing good stones of ore, yielding $\frac{1}{2}$ ton of ore per fathom. In the 90, west of Lowndes' shaft, the lode has fallen off in value in the last few days.

The lode in the 90, at or Lowndes' shaft, is large, and spotted with lead, yielding $\frac{1}{2}$ ton of ore per fathom. The lode in the 80, east of Caro's shaft, is small, and the 70, west of Caro's shaft, is small and unproductive. The men have got on very well with the sinking of San Federico shaft below the 40 ft. level; it will now be suspended in consequence of the increase of water; the lode yielded $\frac{3}{4}$ ton of ore per fathom. Hugo's winze sinking below the 80's down to the 90, the lode yielding 1 ton per fathom.—Los Salidos Mine: The lode in the 110, west of San Carlos shaft, is diminishing in size and value, and is now yielding $\frac{1}{2}$ ton of ore per fathom. The lode in the 100, west of San Carlos shaft, is small, and quite unproductive. The lode in the east of Morris's engine-shaft is large, and contains stones of ore, but not enough to value. In the 110, east of Cox's shaft, the lode has changed unfavourably in the past few days. The 100, east of San Miguel's shaft, is still opening out a fine run of ore ground, yielding 3 tons of ore per fathom. The lode is small and disarranged in the 35, west of Palgrave's shaft. In the 45, west of Palgrave's shaft, the lode is very compact and strong, and, in the 55, west of Palgrave's shaft, the lode is very strong and compact. The lode in the 45, east of Palgrave's shaft, is split into branches and much reduced in value, yielding $\frac{1}{2}$ ton of ore per fathom. In the 35, east of Palgrave's shaft, there is a strong joint which seems to have disarranged the lode. The lode in the 25, east of Palgrave's shaft, is small and unproductive.—Shafts and Winzes: In Swallowfield's shaft below the 25 there is a good branch of ore, producing 1 ton of ore per fathom. The lode in the 25, east of Swallowfield's shaft, is small and unproductive. The lode in the 10, east of Swallowfield's shaft, is small, producing $\frac{1}{2}$ ton of ore per fathom. The lode in the 10, east of Morcia's winze below the 100, yielding 1 ton of ore per fathom. In Morcia's winze below the 90 the lode is greatly disarranged, and at present unproductive. The tribute department yielded very well in the past month, and the slopes have not undergone any change worthy of notice. The works at surface are going on satisfactorily, and the machinery is in good working order. We estimate the raising

FLAMILLOS.—Dec. 17: The lode in the 60 fm. level, west of San Rafael shaft, is large and coarse, yielding occasional stones of lead. The lode in the 85 fm. level, east of the engine-shaft, contains very large and lustrous stones of lead; there is a good stone of lead in the back of the end. In the 50 fm. level, east of La Magdalena shaft, the lode is small and poor. In the 85 fm. level east of Taylor's engine-shaft, the lode is large, spotted with lead. The lode in the 85 fm. level, west of Taylor's engine-shaft, is quite unproductive, and the ground hard for driving through. The 50 fm. level, east of San Victor's shaft, is showing signs of being near a cross-course met with in the level above. The main slide is irregular and coarse, but the lode is small and poor. The lode in the 40 fm. level, east of good stones of ore. The lode in the 20 fm. level, west of Judd's cross-cut, is irregular and compact, yielding $\frac{1}{2}$ ton of ore per fathom. In the 50 fm. level, east of Judd's engine-shaft, the lode is improving, producing good stones of lead, but not enough to value. The ground in the 90 fm. cross-cut, south of Judd's engine shaft, continues very hard for driving through. There is no improvement in the 40 fm. level, east of air-shaft. The 30 fm. level, east of air-shaft, is going through a very hard slide of lead. The 20 fm. level, east of air-shaft, is going through a very hard slide of lead. The lode in the 50 fm. level, east of Crosby's shaft, contains little lead, but not enough to value. The 50 fm. level, west of Crosby's cross-cut is opening out good tribute ground, and the lode is regular, yielding $\frac{1}{2}$ ton of ore

per fathom. In the 40 fm. level, west of Morris's shaft, the lode is small and poor. The lode in the 30 fm. level, east of Swaffield's shaft, is small, containing little lead—Sha's and Winzes: Good progress is being made in the sinking of San Carlos shaft below the 30 fm. level. In Caro's winze below the 75 fm. level the ground is hard for sinking through, and the lode unproductive. The lode is small and poor in Alvarez winze below the 75 fm. level.

LINARES. December 17: The lode in the 85, west of Crosby's shaft, is large, containing a little lead, but not enough to value. The lode in the 75, west of Crosby's shaft, is falling off a little, yielding $\frac{1}{4}$ ton of ore per fathom. In the 75, west of San Francisco shaft, the lode is of a promising appearance, yielding $1\frac{1}{2}$ ton of ore per fathom. We are now letting out a quantity of water. The lode in the 75, east of San Francisco shaft, is very small, yielding $\frac{1}{4}$ ton of ore per fathom. In the 65, west of San Francisco shaft, the lode is small, containing a little ore, producing $\frac{1}{4}$ ton per fathom. The 55 fathom level, west of San Francisco shaft, is not so productive as it was, yielding $\frac{1}{4}$ ton of lead ore per fathom. The lode in the 55 fathom level, east of San Francisco shaft, is very regular, consisting of 15 to 20 fms of lead ore, yielding $\frac{1}{2}$ ton of the latter per fathom. The engine-shaft and Winzes' Good progress is being made in the 45 fathom engine-shaft below the 85 fathom level.—Los Quinientos Mine: The lode in the 65, east of Taylor's engine-shaft, is disordered, and at present of no value. The 65, west of Taylor's engine-shaft, continues hard and poor. The lode in the 55, west of Cox's shaft, has fallen off in value during the past week. In the 55, east of Addis's shaft, the lode is large but not very regular, yielding $\frac{1}{4}$ ton of ore per fathom. The lode in 45, east of Addis's shaft, consists chiefly of quartz, yielding stones of lead ore. The lode in the 35, west of Henty's shaft, is a strong open lode, yielding fine lumps of lead ore. In the 55, west of San Carlos shaft, the lode has very much improved in appearance, yielding $\frac{1}{2}$ ton of ore per fathom. The lode in the 45, west of San Carlos shaft, is regular, and has a very kindly appearance, yielding $\frac{1}{4}$ ton of ore per fathom. The lode in the 65, east of San Carlos shaft, is large and strong, composed of quartz and lead ore, yielding of the latter 1 ton per fathom. In the 55, east of San Carlos shaft, the lode is improving in appearance and value, producing $\frac{1}{4}$ ton of ore per fathom. The lode in the 45, east of Judd's shaft, is small, consisting of carbonate of lime and lead ore, producing $\frac{1}{4}$ ton of the latter per fathom. The ground in the 32 cross-cut, north of Judd's is hard and sparey for driving through.—Shafts and Winzes: Taylor's engine-shaft, sinking below 85 fms, will reach the 90 fms level, and will be 30 fms below the 85 fms level. Francisco's engine-shaft is 55 fms below the 85 fms level, yielding $\frac{1}{4}$ ton of ore per fathom. Antonio's winze, below the 45, is 10 fms below the 55; the lode produces 3 tons of ore per fathom. Julian's winze, below the 45, is going down in a strong, open, productive lode, worth 3 tons per fathom. The lode is small and of no value in Barea's winze below the 55.

LAÑESTOSA.—Dec. 18: Asuncion : In cutting plat for adit level (at Judd's shaft) the ground above the shaft is fully secured, and part of the space required taken out of eastern side. The remaining space will be taken out of southern end, and consequently form part of level in that direction. In driving cave level south the lode continues good, being about 3 ft. wide, composed of a dry lime-burnt mass of galena, carbonate of lead and calamine, mixed with dolomitic rocks, yielding 2 tons both of lead ore and calamine. In stoppe No. 1, in back of cave level south, the lode has been disturbed by a large horse of barren rock, splitting it into two parts, but the yield has not diminished, yielding 2 tons both of calamine and lead ore. In driving adit from mouth side (hitherto called Santo Tomas adit) the lode is now more regular and defined, having two clear walls showing a width of 3 ft. Branches of calamine and lead are daily met with, but as yet nothing of value has been seen. The transaction is now complete.—La Berta: Driving shallow level continues very hard, and it lacks now but little to the top of the shaft. The ore raised to date is estimated at 18 tons lead, and 18 tons calamine and mixed ore. The yielding points continue as at present these quantities will be nearly double for the month.

BENSBERG.—W. Hoffmann, Dec. 20: In the south end of the 20 metre level, from the shaft, we got into lead ore on Saturday; the quality is poor, being very much mixed with iron pyrites, similar to that which was found in the level westerly from the opencast, and also at the foot of the inclined plane. In the north end there is no change to report. The boring trials at the east side of the opencast are being continued, but have as yet led to no particular results. From the opencast we have been chiefly getting wash ore. The level from the shaft is 20 metres, and the drift is 10 metres, there we got into the same class of ore as in the Cabin shaft. The pyrites has disappeared, and the limestone is less decomposed. Production of ore for the week:—Carbonate, 17 tons of 35 per cent. assay; dressed ore, 13 tons of 50 per cent. assay; delivered, 50 tons.

CAPE COPPEL—Returns for October: Yield from Ookiep, 675 tons of 30 per cent.; Spectakel, 67 tons of 29 per cent.—Railway: Traffic for six weeks ending Nov. 1, 750 tons up and 1750 tons down.—Bills of lading received: 430 tons of ore per July, Daniel, and 520 tons per Croynon.—Arrival at Swansona: The Gladstone, with 100 tons of ore, on Dec. 1. On Dec. 2, 100 tons of concentrates, and 18 tons of regulus, at an average of 168.35¢d. per unit, realising approximately 7675/-; and on Dec. 2, by public ticketing, 487 tons of ore, at an average of 168.53¢d. per unit, realising approximately 15,277/- net. Put forward for sale, by public ticketing, 100 tons of regulus, at an average of 168.53¢d. per unit, realising approximately 15,277/- net. Dividend declared 20s. per share, free of income tax, payable on Dec. 24.

MINING IN AUSTRALASIA—MONTHLY SUMMARY.

BURRA BURRA.—The report and balance-sheet of the South Australian Mining Association, or more popularly known as the Burra Burra Mines, for the year ended March 31, states that the yield for that period has "increased to upwards of 1500 tons of copper ore, containing an average of 10 per cent. of metal." Operations for the six months ending March 31, including rents and other receipts, yielded a net profit of 1869*l.* 11*s.* 3*d.*, which raised the balance to the credit of the account to 17,431*l.* 19*s.* 10*d.* It is, however, thought that the produce of the last half-year will "barely meet the expenditure, in consequence of a considerable amount of work being done during that period of a permanent character, and which will not require to be renewed." Capt. Landers gives his impression of the mine as follows:—"The mine is giving out in about 12 months since it was discovered, but if anything it is more in favour of the ultimate success of the undertaking, as I am fully convinced the Burra contains two or more distinct and well defined lodes traversed by several cross-courses, causing intersections and dislocations, which will always considered desirable in a mining property. The mine only requires to be extended in depth and in length southward, to make it a lasting and profitable concern." The establishment comprises 314 hands, all told. The total assets of the mine are set down at 86,727*l.*, while the liabilities stand at the sum of 71,866*l.* 13*s.* 3*d.*, thus leaving a net available balance of 15,011*l.* 0*s.* 6*d.*, as to the disposition of which the directors are silent.

AUSTRALIAN MINES.

PORT PHILLIP AND COLONIAL (Gold).—The resident director (Nov. 3) says:—The quantity of quartz crushed during the month ending Oct. 29 was 5,110 tons; pyrites treated, 760 tons; total gold obtained, 1028 ozs. 4 dwts., or an average per ton of 4 dwts. 9 grs. The returns were £10,388 1s. 3d.; cost, £3787l. 2s. 3d.; profit, 3119s. 2d., to which was added last month's balance of 676l. 12s. 7d., making a total of 711l. 11s. 9d., which was carried forward to next month's account. During the three weeks ending Oct. 29 the quantity of quartz crushed was 3884 tons; total gold obtained, 776 ozs. 4 dwts., or an average per ton

SCOTTISH AUSTRALIAN.—The directors have advices from Sydney dated Nov. 3, with reports from the Lambton Colliery to Oct. 31. The sales of coal for the month of October amounted to 16,967 tons.

ANGLO-AUSTRALIAN.—J. Raisbeck Nov. 5: I have the honour to report progress since Oct. 9:—East Shaft: We have sunk since the above date 17 ft. The sinking has been principally through alternate runs of sandstone and slates. Several small leaders of quartz have been passed through during the month. It was my intention to sink 22 ft. more, and then open out to the east in the 400 ft. level. I think this will be of sufficient depth for the northern runs of the Ferron level, and a small block of coarse sandstone, but the

Clark I am compelled to stop sinking for the present. Present depth of shaft 385 ft.—Prospecting Shaft, South End of Hill: In my last report I omitted to mention the extent of the ground lost on tribute; it is 60 ft. north and 60 ft. south of shaft, on the present leader. They commenced operations on Sept. 6, and drove east 25 ft. on leader. The results of crushing are as follow:—No. 1 lot, 4 tons of lead, 1 lb. 10 oz.; No. 2 lots, 1 ton, 1 lb. 10 oz.; No. 3 lots, 1 ton, 1 lb. 10 oz.; No. 4 lots, 1 ton, 1 lb. 10 oz.; No. 5 lot, 28 oz.; No. 6 lot, 13 dwts.; No. 7 lot, 13 dwts.; No. 8 lot, 13 dwts.; No. 9 lot, 13 dwts.; No. 10 lot, 13 dwts.; No. 11 lot, 13 dwts.; No. 12 lot, 13 dwts.; No. 13 lot, 13 dwts.; No. 14 lot, 13 dwts.; No. 15 lot, 13 dwts.; No. 16 lot, 13 dwts.; No. 17 lot, 13 dwts.; No. 18 lot, 13 dwts.; No. 19 lot, 13 dwts.; No. 20 lot, 13 dwts.; No. 21 lot, 13 dwts.; No. 22 lot, 13 dwts.; No. 23 lot, 13 dwts.; No. 24 lot, 13 dwts.; No. 25 lot, 13 dwts.; No. 26 lot, 13 dwts.; No. 27 lot, 13 dwts.; No. 28 lot, 13 dwts.; No. 29 lot, 13 dwts.; No. 30 lot, 13 dwts.; No. 31 lot, 13 dwts.; No. 32 lot, 13 dwts.; No. 33 lot, 13 dwts.; No. 34 lot, 13 dwts.; No. 35 lot, 13 dwts.; No. 36 lot, 13 dwts.; No. 37 lot, 13 dwts.; No. 38 lot, 13 dwts.; No. 39 lot, 13 dwts.; No. 40 lot, 13 dwts.; No. 41 lot, 13 dwts.; No. 42 lot, 13 dwts.; 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ENGLISH AND AUSTRALIAN (Copper).—Nov. 7: The stock of copper at Port Adelaide was about 700 tons, besides some coal not arrived. At the Port Adelaide works there were seven furnaces roasting, and one refinery at work. There are about 176 tons of copper shipped.

EBERHARDT AND AUKORA.—The directors announce that the half-year's interest, due the 31st inst. upon the 10 per cent. debenture bonds, will be paid on and after that date, at the offices of the company, Angel-court, Thread-needle-street.

EBERHARDT AND ACURA—THE NEW INTERNATIONAL MILL.—While passing through the mill, the other day, it was a matter of astonishment to notice the immense amount of work accomplished in so short a time. Reverting back in memory to the apparently useless mass of debris which remained after the great work of the mill had been completed, the mind is filled with the thought that the mill is a masterpiece of engineering, and that the shuffling, and all the accumulation of wreck and ruin, one cannot but admire the skill, ingenuity, and perseverance which have been displayed and made manifest in the magnificent structure now almost completed. Only such material as was unnecessarily destroyed by fire has been purchased to replace the old, a fact a casual observer would never notice while looking at the mill. Everything has been done to render the institution one of convenience and comfort to the workmen and all experienced millmen assert that there is no better appointed or constructed mill in the kind in Nevada. We have before mentioned the completion of the new structure, but cannot refrain at this time from offering our sincere congratulations to all concerned for the successful completion of the work.—*White Pine News.*

CAMP FLOYD MILL.—Three bars of the six that came in from the mill are on exhibition at Watter Brothers, jewellers, Main-street. They are beauties, their fineness being 995, 996, and 999. Those sent east already are from the Lion Hill Mine. Those on exhibition are from the Sunnyside Mine, belonging to Mr. Warren Hussey. —*Salt Lake Daily Tribune*, Dec. 3.

THE UTAH.—Having heard so much about the new concentration works, and the operations of the mines belonging to the Uta Silver Mining Company of London, I took advantage of the opportunity presented shortly after my arrival here to visit the mines and works. After delivering letters of introduction to the manager, Mr. Longmaid, we proceeded to inspect the underground works and entered the main tunnel, which commences on a level with the crusher floor of the concentration works. This tunnel was made with a view to interest all the visitors, and there were some 200 persons present. The tunnel was 10 ft. high, and exposed, and certainly the greatest that I have seen in any mine in Utah. More work has been done in the last three months than was done during the whole two and a-half years under the former managements. After the ore is received from the different slutes into the cars, in the main tunnel, it undergoes very little manual labour, for it is dumped into the crusher, then into the mill, and finally into the concentrator, where it is broken up by machinery, through all the different stages until the silver and lead are concentrated up as high as 80 per cent. of lead and 25 ozs. of silver. As a millwright and practical machinist, I am pleased to say the

at no place in Utah, or even on the Pacific Coast, have I ever seen machinery more perfectly put up than is being done at these works. I cannot see how the company can fail to prove a permanent dividend-paying concern, provided the present managers are allowed to continue their operations in the manner they are now doing.—*J. B. Salt Lake Daily Herald, Nov. 30.*

With this week's Journal a SUPPLEMENTAL SHEET is given which contains—Original Correspondence: Tin Deposits of Australia (S. L. Benson); Mining in Queensland: Tin Deposits of Australia (S. L. Benson); Mining in Utah—the Flagstaff, Camp Floyd Mining Company; Mining and Mining Enterprise; Wheel Blencowe: An Afternoon in an Elvan Course; Wheel Lucy; Silver in Copper Ores; Mineral Statistics (R. Hunt); Rock Drills (McKean and Co., G. W. Denys); Miners' wages—Ten-Weeks' Movement (R. Hunt); North Rosewarne Mine (R. Treddinick); Silver in Copper Ores; Mining and Mining Enterprise—No. 1; Flagstaff and Last Chance, &c.

MINERS' RIGHTS IN THE ISLE OF MAN.—An important judgment has recently been given by the Lords of the Judicial Committee of the Privy Council on the appeal of the Ballacorkish Company v. Dumbell. The mining company holding a Crown lease for mining worked under the respondents' land, and the respondents complained that the company damaged the surface by depositing spoil from the mine upon it; and, secondly, by drying three springs of water. The depositing of the spoil was proved to be in accordance with the custom of the island (Isle of Man); and as to the water, the company's level was 150 ft. below the surface near where the springs lay, but a porous vein apparently drained off the veins. The particular springs were not shown to have been in existence at the time of the passing of the Act of 1793, by which the mutual rights of the lords and the tenants of the manor were adjusted, so that an implied grant could only be as part of the general ownership and dominion of the surface. Their lordships decided that the grant of the surface could not carry with it more than the absolute ownership of the entire soil would include, and this would not include protection from loss by water by percolation into openings made in the soil of a neighbouring owner. To hold otherwise might not improbably result in rendering the reservation of mines and minerals wholly useless. In the result their lordships decided in favour of the mining company; they allowed the appeal, and ordered that the decree of July 8, 1872, should be varied by omitting so much of the same as declares that in the opinion of the Court of Chancery the defendants are also liable to make compensation to the complainants for the damage caused to the aforesaid lands by the defendants sinking and working mines on the lands of complainants, and thereby interfering with the rights of water as complained of in this bill, and as directs the jury to estimate and assess the amount of damage (if any) done by interference with water; and by declaring that the plaintiffs are not entitled to compensation for such last-mentioned damage. And that the order of the Court for an injunction should be reversed, as not being justified by any established practice of the Courts in the Isle of Man, and contrary to the practice of the Courts of England; but that the bond, which appears to have taken the place of the arrested goods, should remain in force, and that the appellants are entitled to their costs.

PRACTICAL MINING—THE PRIZE ESSAYS.—Early in the present year we published a series of essays, written in competition for the prize offered by "A Former Correspondent," and remarked that Mr. RALPH GOLDSWORTHY'S was unquestionably the most meritorious, whether regarded for the ability displayed or for its practical utility, and this view was confirmed by the Royal Cornwall Polytechnic Society awarding it a first-class bronze medal; it will, therefore, be gratifying to a large number of students and miners to learn that the author has decided upon republishing the essay in a shilling pamphlet. It contains, as we have already stated, a large amount of really sound practical information. Mr. Goldsworthy has satisfactorily proved that the most modern is not always the best machinery, and that the good old type of engine—the single-acting Cornish pump-engine—is not equalled by any of the new forms now employed; although the duty is said to have dropped off, this is not really the case. The difference of duty now as compared with 50 years ago will be found to be owing to the inferior coal now used, as may be verified by the agents' reports in most of our great mines, more especially during the last winter months, when coal was so scarce. He not unnaturally recommends this form of engine to be used for main drainage—the first and most important operation connected with mining—and with regard to the duty which can be got out of them he refers to the 100-inch cylinder engine at Kew Bridge Waterworks, which does a duty of 90,000,000 lbs. to the 90 in. beside it, which does 105,000,000 lbs.; and to the great 144-in. engine employed in the drainage of the Haarlem lakes, which does a duty of 90,000,000 lbs. lifted 1 ft. high by the consumption of 1 cwt. of coal. He furnishes an invaluable table of the duty of engines of this class, which will be of the utmost utility for permanent reference. In a similar way he refers to the best kind of pistons, to the patent four-beat pump valves, boilers, pitwork, water-power, windmills (some of which, exceeding 100-horse power, he mentions as being successfully employed in Holland for purposes analogous to those connected with mining), hoisting, rock-boring, blasting, stamping, pulverisers, ore dressing in all its stages, mining tools, &c.—in fact, it is difficult to see how the Essay could have been made more complete or more useful.

MINING NOTABILIA.

[EXTRACTS FROM OUR MINING CORRESPONDENCE.]

WEST CHIVERTON.—We are pleased to observe that a renewal of the various sets has been agreed to at 675s. This is an important matter, as it was once feared the lords would have demanded an overwhelming sum, which might have crushed this valuable mine. West Chiverton will very soon be "itself again."

MINING OPERATIONS IN NORTH DEVON.—Within the last few months several lodes of red hematite iron ore and manganese have been discovered between Barnstaple and Ilfracombe and Lynton. Hitherto the lodes have been small, but the quality of the ore is of a high standard. Investigations have been made at only a few feet below surface, but it is confidently believed that if a fair trial were made the ore would be found in sufficient quantities to pay for working. At the Bampfylde Mine, North Molton, a good lode, or rather lodes, of iron ore are now being worked upon, and several thousand tons are likely to be shipped from Barnstaple to Wales, the produce of that mine, in the coming spring.

MOUNT DALBY (Silver-Lead).—An extraordinary general meeting was held at the Clarence Hotel, Manchester, on Thursday, for the purpose of passing a resolution to devise means for raising more capital for paying the vendor, and other necessary expenses, for working mine, &c. About half-a-dozen subscribers only attended, and Mr. J. J. Derry, of St. Austell, was elected chairman. After a desultory conversation as to the merits and demerits of the five propositions submitted by circular to the shareholders, it was finally proposed by Mr. M. N. Woodard, B.L., and seconded by Mr. Herbert Allen, that the shareholders be asked to subscribe one fully paid-up 1s. share for every ten shares held. After some further unimportant conversation the resolution was carried.

LLANRWST (Lead).—The directors have this day (Dec. 23) gone to allotment in this company, and the prospects of the mine are of the most satisfactory character.

FORTESCUE (Tin).—We are glad to find that the claim against this promising mine, for which a petition was presented by Mr. J. J. Derry, of St. Austell, has been paid. We hear also that monthly sales of tin will now take place considerably more than sufficient to pay the expenses of the mine, and we may congratulate the shareholders on the success of the undertaking. Great praise is due to the managing director for the manner in which he has laid out the plant and the great energy he has displayed from the commencement of the works in bringing the mine to what it is. There are 24 heads of stamps at work, and we are told that with this small battery from 5 to 6 tons of tin can be returned monthly. The calciner is completed, and the burning of ore will take place on Monday next.

FRANK MILLS.—The returns of lead ore for the twelve weeks ending Aug. 30 are 62 tons 2 cwt. 2 qrs., which realised 791l. 1s. 2d. These returns are less than for the quarter ended June 7 last. The stock of spathose iron ore has, however, been increased to about 2000 tons, and will be of good marketable value as soon as the Teign Valley or some other railway is made, of which your committee have very reasonable expectations will soon be accomplished. Your committee are pleased to report that the costs have been reduced, and an important discovery of lead ore has recently been made in the 45, north of Orchard air-shaft, where the lode is worth at least 1 ton of lead ore per fathom, with every prospect of continuing. This discovery will considerably increase the returns when it has been fairly opened upon. Your committee have to report that since the last general meeting the company's manager, Captain John Cornish, has resigned his office and accepted the management of the Great Laxey Mine, Isle of Man, and with regret, the death of Capt. F. Cornish, who was many years second captain.

IRON IN VANCOUVER ISLAND.—Mr. Richardson, the Dominion Geological Surveyor, who has spent the greater part of the past summer in geological researches along the coast and in the interior of Vancouver Island, gives a glowing account of the vast mineral resources which everywhere abound in the colony. Iron, coal, copper, marble, &c., exist in exhaustible quantities, and must sooner or later be productive of untold wealth. On Texada Island alone the iron beds, if beds they can properly be called, seeing that they tower up mountains high above the level of the sea, are of incalculable value, the rock assaying 80 per cent. of pure iron of the very best quality. In the immediate vicinity of these vast iron beds are equally vast beds of excellent limestone, and in close proximity to them are extensive veins of bituminous coal.

Diamonds in Australia.—The Bingers correspondent of the *Tamworth Examiner* of Oct. 4 states that at Eaglehawk Messrs. McCaw and Westcott are getting more gems than ever since the erection of one of Hunt's machines on their claim. The following is a table of the progress of their work since commencing, only a few short months ago:—Total number of diamonds obtained up to Aug. 26, 1873—400 diamonds sold to Mr. H. Quibart, 192 grs.; 450 diamonds forwarded to the Bank of New South Wales, 305 grs.; 310 diamonds sold to sundry persons, 163 grs.; 360 diamonds on hand this date, 150 grs.: total diamonds, 1680; total grs., 803. Calculating 3½ grs. to a carat, 247 1-13 carats. List of some large diamonds:—1, 8 grs.; 1, 4 grs.; 5, 3 grs.; 85, 2 grs.; total, 1680. Average weight about ¼ gr. Average per lot—Aug. 25, 5 loads, 56 diamonds, 32 grs.; Aug. 26, 5 loads, 58 diamonds, 38 grs.; which would be 11 1-13, or nearly 12 diamonds to the load.—*Sydney Morning Herald, Nov. 3.*

CHICAGO SILVER MINING COMPANY.—The furnace of the Chicago Silver Mining Company, at Rush Lake, Stockton, has produced for the week ending Dec. 4—Of bullion, 889 bars 99,520 lbs.; of lead and copper matte, 11,305 lbs.; the latter carrying about 80 ozs. silver per ton, 20 per cent. copper, and 70 per cent. lead. The chamber (patent applied for) has saved in the same time, of ore, in fine particles passing through the stack mechanically, and of condensed silver and lead fumes, 18 7/8 lbs. This product carries values in silver about 8 ozs. per ton less, and in lead about 8 per cent. more than the ore fed into the furnace, and from which it resulted. It has been reintroduced into the furnace, dampened with lime-water, and the product is included in the bullion yield above named.—*Utah Mining Gazette.*

The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, DEC. 24, 1873.

COPPER.				IRON.			
Best selected...	per ton	£	s. d.	Bars Welsh, in London	per ton	£	s. d.
Tough cake and tile...	93	0	0-94 0 0	Do., to arrive	11 17	6-12	0 0
Sheeting & sheets...	96	0	0-97 0 0	Nail rods	12	5	0-
Bolts	102	0	0-103 0 0	Do., Staffs, in London	12	10	0-
Bottoms	100	0	0-102 0 0	Bars, ditto	12	10	0-14 0 0
Old	85	0	0-	Hoops, ditto	14	5	0-15 0 0
Burra Burra	91	0	0-92 0 0	Bars, at works	11	10	0-
Wire	per lb.	0	1 03½-	Hoops, ditto	13	10	0-14 0 0
Tubes	per lb.	0	1 03½-1 1	Sheets, single & plates	10	0-15 10 0	
BRASS.				Pig No. 1, in Wales			
Sheet, 10d.-11d.	per lb.	10d.-11d.		Refined metal	7	0	5-8 0 0
Wire	per lb.	10d.-11d.		Bars, common, ditto	11	10	0-
Tubes	per lb.	11½d.-11¾d.		Do., mch. Tyneor Tees	5	0-11 10 0	
Yellow metal sheeting	per lb.	8½d.-8¾d.		Do., railway, in Wales	10	0-11 0 0	
Sheets	per lb.	8½d.-8¾d.		Do., Swed. in London	19	5	0-19 10 0
SPELTHER.				To arrive			
Foreign on the spot.	per ton	26 10-27 10 0		Pig No. 1, in Clyde	5	0	5-15 0 0
Do., to arrive	per ton	26 0-0-		Do., f.o.b. Tyneor Tees	4	10	0-5 10 0
ZINC.				Do., Nos. 3, 4, f.o.b., do.			
In sheets	per ton	32 0-33 0 0		Railway chairs	5	0	5-6 0 0
QUICKSILVER (p. bot.)	per lb.	19 10-20 0 0		Do., spikes	12	10	0-14 0 0
TIN.				Indian Charcoal Pigs			
English blocks	per ton	£122 0-0-		Do., in London, p. ton	10	0	0-12 0 0
Do., bars (in bris.)	per ton	123 0-0-		STEEL.			
Do., refined	per ton	124 0-0-		Swed., in kegs (rolled)	per ton	0-	-
Banca	per ton	118 0-0-120 0 0		Ditto (hammered)	21	0	0-
Straits	per ton	120 0-0-121 0 0		Ditto, in faggots	22	0	0-
TIN-PLATES.				English, spring			
IX Charcoal, 1st qua.	per box	£1 17 0-1 19 0		Swed., in kegs (rolled)	per ton	0-	-
IX Do., 1st quality	per box	2 3 0-2 5 0		Ditto (hammered)	21	0	0-
IX Do., 2d quality	per box	1 15 0-1 17 0		Ditto, in faggots	22	0	0-
IX Do., 3d quality	per box	2 1 0-2 3 0		English, spring	24	0	0-25 0 0
IX Coke	per box	1 9 6-1 11 0		LEAD.			
IX Ditto	per box	1 15 6-1 17 0		English Pig, com.	per ton	0-24 5 0	
Danado plates, p. ton	per ton	21 0-21 10 0		Ditto, L.B.	24	0	0-
Ditto, at works	per ton	20 0-21 0 0		Ditto, W.B.	25	0	0-

* At the works, 1s. to 1s. 6d. per box less. Add 6s. for each X.
Terns-plates 2s. per box below tin-plates of similar brand.

REMARKS.—The markets have this week undergone comparatively little alteration. The amount of business transacted has been of a limited character, nevertheless prices have been steadily maintained. There still, however, exists some uncertainty regarding the future course of the markets, as buyers continue to withhold their orders, but it is thought by sellers that they cannot do so much longer. They fully expect on the opening of the ensuing year that there will be a considerable improvement in business generally. The little impression that has been made upon the price of coals, and the great increase established in wages, will prevent manufacturers making any reductions, and easy money must undoubtedly facilitate all legitimate enterprise, as well as stimulate speculation, the trade may, therefore, look forward with confidence to better times and prices.

COPPER.—In manufactured sellers have accepted orders at lower rates. Indian sheets 4 by 4, and sheeting 4 by 14, have been placed at 96s. per ton. In yellow metal a fall has also taken place, sheets and sheeting having been sold within a fraction of 8½d. per lb. The orders now remaining on hand are scarce at these limits, and no large quantity would be bought above 8d. per lb. In tin, sellers have also slightly given way to the extent of about 10s. per ton. Foreign is very limited request, and does not show any signs of improvement. The extent of the charters will probably be made known by Monday next, and as usual the turn of the market will very much depend upon the quantity coming forward. The variations in price during the latter part of this year have been so trifling that unless some new feature of importance arises speculators are not likely to be tempted to make any extensive operations, the charges in many instances have been fully equal to what little margin has been realised in the price, and these slight fluctuations are not sufficiently tempting to induce business beyond the requirements of consumption.

IRON.—The last week of the year is not likely to prove very fertile in news regarding the iron trade. Very little business is doing; merchants and dealers have not yet entered upon the new schemes with which next year's operations may be fraught, and manufacturers have not got such a pressure of orders upon their books as to bring them into collision with their men, who, being more than ordinarily in funds at this season, owing to the high rate of wages they have been receiving, are quite content to spend their surplus earnings in holiday indulgences to an unusual degree. Masters are equally satisfied that matters should be as they are. The men are taking a holiday just at the time and under the circumstances when it is most convenient to all parties that they should do so, and it is hoped that having had their holiday, and spent their money, they may be all the more disposed to go in and work with a will after the turn of the year, when it is anticipated that orders will be given out more generally than of late. Indeed, if the anticipations which some of the ironmasters do not scruple to express with regard to the coming year are realised, there will be no cause for complaint. It is not easy to see upon what substantial grounds these hopeful anticipations are based, beyond the fact that it is known that orders are kept back, and have been kept back for some time, owing to the high prices quoted, and it is possible that the same reasons which have up to this time hindered the progress of business may continue in operation until prices are reduced. In the North of England the wages question has occupied the attention of both masters and men rather than anything else, and the result of various meetings is that a fair promise is afforded of the adoption of a self-adjusting sliding-scale, which will be in force in the North of England and in Staffordshire. Puddlers are to receive 12s. 4d. per ton for the first three months in the year. If this arrangement is really found to answer it will go far to put employers and employed on happier terms than have existed for some time past. In Welsh bars there is a decided improvement, and prices are stronger; indeed, there are already some indications of a revival, and many of the works have not enough to carry them over the slackened period of the year, so that in a short time, when the orders are given out for early spring delivery, higher prices may have to be paid. There is a steady market for Scotch pigs, and a good deal of business transacted between 106s. 6d. to 107s. 6d. Makers prices continue very firm.

SHIPMENTS.		Tons	
Week ending Dec. 21, 1873	11,486		
Week ending Dec. 20, 1873	9,159		
Decrease	2,327		
Total decrease since Dec. 25, 1872	229,422		
LEAD.—Prices are firm; sellers are indisposed to make concessions.			
SPELTHER.—This metal has been slightly easier, and sales for arrival at 25s. are reported.			
STEEL.—No change. The demand for foreign is slack, but the price has not declined.			
QUICKSILVER.—Orders are few, and for very small quantities.			
TIN-PLATES.—Makers are fairly supplied with orders, and firm at present quotations.			
TIN.—The market has been somewhat fluctuating in price, and appears to be again tending in a downward direction, the present value of Straits being 120s. to 121s., Banca 118s. to 119s., and the same for Australian. In English the quotation remains at 122s., sellers.			

The MINING SHARE MARKET opened on Monday with a fair demand for tin mines at advanced prices, but as the market closes this day (Wednesday) for the Christmas holidays we have not any very large amount of business transactions to record or many changes to notice.

In our remarks upon the tin trade last week a clerical error occurred. We wrote that Straits tin was daily advancing in price, and had "altogether risen about 8s. per ton."

Transactions have taken place since our last in Dolcoath, Carn Brea, Wheal Granville, Wheal Crebor, Wheal Peavor, Penstruthal, Roman Gravel, Tankerville, South Frances, West Frances, West Tankerville, and one or two other mines.

Dolcoaths have advanced to 50, 52; Carn Brea, 61 to 63; Cook's Kitchen, 12 to 13; Tincroft, 39 to 41; East Bassett, 10 to 12; East Lovell, 10 to 11; East Pool, 9 to 10. Wheal Peavors have been in request at an advance to 2, 2½; the agents are in daily expectation of seeing the bottom of this mine, where tradition asserts and old plans show there is a rich lode when last worked, and when tin was at a low price. The mine, therefore, is reaching an interesting stage, and there will, doubtless, be considerable dealings and fluctuations in the shares. Wheal Crebor, 4½ to 4¾; Roman Gravel, 17 to 17½; South Roman Gravel, 19s. to 21s.; Bedford, 15s. to 20s.; Great Laxey, 13 to 14; Great Wheal Vor, 2 to 2½; Marke Valley, 20s. to 25s.; Penstruthal have been in good request at 20s. to 22s. 6d.; Perkins Beach, 10s. to 12s. 6d.

West Chiverton, 4½ to 5; the next meeting is to be held at the mine on Wednesday; the purser writes for the information of the shareholders that an offer has been made to renew, as to the portion of the sett not yet re-granted, upon the payment of 675s. Wheal Granville, 7 to 8, not quite so firm. The rise above the 150 in South Condurrow lode is worth 35s. per fathom; the 140 end is worth 40s. per fathom; the slope above it is worth 20s. per fathom. Provi-

dence, 7½ to 8½; the dues here have been remitted during pleasure, but a call will be made at the meeting. Old Bottle Hill, 1½ to 2; in reference to the copper sale noticed last week, the average produce of which was 14½ per cent., we understand it was raised in a sink about 9 fms. east of Rowe's shaft, and that the shaft is now to be sunk on the course of the lode 10 fms. deeper, to get under the copper deposit. In driving the 36 end 14 fms., and stopping the copper, it produced 2 tons of tin and 5 tons of copper—in money value 1900l., showing a good lode, and to get under it will take about three months, at a cost of 300l. to 400l. per month. Rookhope, 20s. to 25s. South Carn Brea, 3½ to 3¾; South Condurrow, 4½ to 5; South Frances, 13 to 15; St. Lawrence Amalgamated, 2½ to 2¾; Tankerville, 9½ to 10½; Van Consoles, 4 to 4½; West Bassett, 8½ to 9; West Caradon, 2s. 6d. to 3s. 6d.; West Frances, 13 to 15; West Tankerville, 2½ to 2¾; Wheal Kitty (St. Agnes), 8½ to 9½. Dyliffe, 7 to 7½, and mine improved; the monthly sale of ore, 80 tons, realised 147. 4s. 6d. per ton.

The St. John del Rey Mining Company will hold their half-yearly meeting on Wednesday, when the directors will have the satisfaction of presenting a very favourable report. They have to congratulate the shareholders on the completion of the great work of recovering the Cachoeira and Bahu Mines which was so confidently undertaken after the fire in Cachoeira and successfully accomplished on Oct. 7. Mr. Gordon writes that it is a matter of the greatest satisfaction to find that Shaft A, at a depth of 182 fms. from surface, struck the side of the lode within a few feet (3 ft. 6 in.) of the point intended as fixed by survey. Both Mr. Gordon and the directors express the opinion that all praise is due to the engineer who has superintended, and to the captains and men who have performed the work so successfully. During the six months ending October 62 fms. 4 ft. 7 in. were sunk, the largest amount of sinking accomplished in any half-year since the work was commenced. The total cost incurred on new shafts, including surface work, has been 78,150l. 1s. 6d. There has been an excess of expenditure over receipts for the half-year both on the Morro Velho and Fernam Paes estates, but this will be met by a credit to about the like amount for the value of stores supplied and charged to the new shaft account, but paid for and charged to the Morro Velho account in past years. As the Gaia Mine has for some months past been worked at a loss, and as there will soon be profitable employment at Morro Velho for the people hitherto working there, the greater part of the force has been withdrawn from the Fernam Paes estate, and the operations thereon are about to be wholly suspended. Of 33,000l. of new stock, authorised to be issued by the special resolution passed on June 30 last and confirmed on July 23 following, 31,275l. was accepted. The balance, 1725l., not having been accepted, was sold by the directors under the authority of the resolution at a profit to the company of 882l. 4s. 6d. The statement of the financial position of the company, to end November in England and end of October in Brazil, shows a balance of assets over liabilities of 24,862l. 3s. 10d. At Morro Velho there is, in addition, 2567l. 16s. 8d., and at Rio de Janeiro a credit balance of 2711 7s. 7d.

Choutales, 3 to 1; Emma, 3½ to 3¾; Flagstaff, 3½ to 4; Sweetland Creek, 5½ to 5¾.

The Market for Mine Shares on the Stock Exchange during the week has been moderately active, although the holidays and the approach of the fortnightly settlement, which will commence on Saturday, have tended to restrict business. Among home mines, tin and copper descriptions have been in much greater request, the improving value of those metals and the declining value of labour, coal, and materials, inducing considerable purchases by those who realised when much higher quotations were obtained.

American mines have been generally flatter, the unsatisfactory condition, financial and otherwise, of many of the Utah mines causing bona fide holders to press sales. The exception has been in the shares of the leading gold-washing companies, in which a fair amount of business has been transacted at advancing quotations; this has been especially apparent in Blue Tent and Sweetland Creek.

The Metal Market generally fully maintains the general improvement noted last week. Copper remains firm, holders being disinclined to realise, in the expectation that higher values will result. Tin in fair demand, although, in sympathy with the Dutch market, the recent advance has scarcely been maintained. Lead continues firm at quotations.

Richmond Consolidated, 6½ to 6¾; the weekly cable was as follows:—"Two furnaces, \$40,000—looking splendid." We are informed that a letter received from the superintendent on Tuesday states that "everything is moving along as usual—mines still looking splendid in lowest workings. Rossiter incline down 200 ft. in good ore. The Glue shaft is 173 ft. deep, and will run tunnel to cut the ledge at 200 ft." It is evident from this statement that a junction between the outside shaft and the Rossiter incline will shortly be effected, and great additional facilities be thus available for taking out ore. A letter has also been received from Mr. Clarence King, who states "that the ore body has increased from 80 ft. on the footwall to 150 ft., and seems to hold its full thickness. Lateral drifts east and west develop magnificent regions of ore. The levels, cross-cuts, and the stopings are so very irregular that measurements of the actual tonnage is practically impossible, but it is within the limit of safety to say that never in the history of the mine has there been such an amount of ore in sight. The downward aspect of the ore channel is also most flattering, and there seems to be no reason suggested by the ground why the ore may not continue downward indefinitely, certainly the present showings below the Lizette Tunnel are unexpectedly fine, and are subject for the heartiest congratulations." It is stated that since Mr. King's visit explorations have been successfully continued, the ore being richer and greater in volume. Information has been received that the railroad between Eureka and Pallasades, on the Central Pacific line, has been commenced, 300 white labourers being at work, and 1500 Chinese are shortly expected. It is expected the line will be opened in August; an increase of present profits are looked for upon its completion. The "make" of bullion since the mine resumed operations at the end of March has been 5000 tons, which, at \$270 per ton, represents 270,000l. Mr. Probert returned from the mines on Monday, and it is understood confirms in explicit terms the increase in the value of the property, resulting from discoveries made during the past three months. The bullion sold since the date to which the accounts were made up (end of August) has realised more than the rate per ton, taken as estimated in the accounts. Eberhardt and Aurora, 4 to 4½; the directors announce that the half-year's interest, due the 31st inst., upon the 10 per cent. debenture bonds, will be paid on and after that date at the offices of the company. New Pacific, 5-16ths to 7-16ths; there has been some business in these shares during the week; the progress of the work is satisfactory.

Flagstaff shares have changed hands at lower quotations, although closing 3¼ to 4. Comment continues to be freely made upon the recent action of the board without the sanction of the shareholders, most of whom, judging from the numerous communications we have received upon the subject, would have subscribed the additional capital necessary rather than allow the absolute management and control of their property to pass entirely out of their own hands. As to the attachment suit, referred to last week, it appears to have been commenced in the Third District Court on behalf of Captain Forbes to recover a debt of \$18,000. The attachment was served by the officers taking possession of a large amount of bullion, ore, and other property; the company had moved to discharge the attachment upon the ground that the debt was secured by a mortgage of the property. Snow has commenced to fall in the canyon. Last Chance, 1½ to 2; Tecoma, 1½ to 1¾. Utah, 1½ to 1¾; the agent reports everything is progressing satisfactorily, and hopes to be able to start the new machinery about the end of the present month; the report appears in another column. Chicago, 7 to 7½; the latest advices are to the effect that there are between 30 and 40 men employed daily, and hauling about 30 tons, yielding a net profit upon the mine of about \$30 per ton. Mammoth Copperopolis, 4½ to 5½; the mill, which has not been running for some time on account of the scarcity of water, will soon be in operation again, the company having purchased another spring of water; considerable copper bullion is being run out, which has proved a success in every way.

The shares of the various gold-washing companies are still in request, although business has been dull in consequence of the holidays.

days; now the rainy season has commenced the prospects of all of them are good, and telegrams may shortly be looked for announcing the result of the "cleans-up." Cedar Creek, 2 to 2½; the circular issued by the directors last week has been favourably received by the shareholder, judging from what we hear; with such an addition to the property its value will be greatly enhanced, and cannot fail to be very remunerative. In another column appears some interesting particulars concerning the company. Blue Tent, 5½ to 5½; in another column appears a report from the superintendent, who can, however, add nothing to previous letters, everything being ready for washing. Sweetland Creek, 5½ to 5½; washing having commenced early news of a clean-up may be expected almost immediately. The quarterly dividend of 5s. per share (25 cent. per annum) was distributed on Wednesday. Birdseye Creek, 2½ to 3½; Mr. Powers writes that the new claims he has been fitting up are now all ready. Malpas, 1½ to 1½; at the meeting, on Tuesday, resolutions will be submitted for raising additional capital. Rica, 8 to 8½; Malabar, 4 to 4½. St. John del Rey, 185 to 190. General Brazilian, 4 to 4½; it is understood the new capital is being well applied for; the gold return for October was 449 oitavas, derived from the canons for 27 days' working of 16 hours per day; the yield for the three months is estimated at 450 oitavas.

Van, 32½ to 35; the driving of the cross-cut towards the 75 fm. level end has been resumed, and before long the main lode will be intersected; the 60 east has further improved, now worth 900. per fathom; the bottom levels are opening up very rich. Van Consols, 3½ to 4½. Roman Gravel, 17 to 17½; the mine continues to look well; the quarterly dividend is due next week, and will, no doubt, be declared as usual. Tankerville, 9½ to 10½; the report, in another column, shows the late discovery in the 60 fm. level holds good, and is in whole ground—an important feature for the future of the mine; the sampling this month is 75 tons. Dyllife, 7 to 8; the Dyllife lode has further improved; the monthly sale of ore on Wednesday, of 80 tons, realised 1138. Bog, 1½ to 1½; the report in another column is considered very good; the agent is sinking in a fine lode, and has increased the tribute pitches; on Wednesday there were sold 35 tons of ore, realising 486. 15s. Pennerley, 2½ to 2½; the mine continues to look well; Potter's Pit is still opening up a fine lode, and looking like continuing; 70 tons of lead were sold on Wednesday, realising the sum of 1023. 15s.

Among Tin Mines Carn Brea shares have been dealt in at 60 to 62½; Tincroft, 37½ to 40½. Wheal Pevor shares have been in good demand, and advanced to 2½, upon material improvements in the mine. The following are the closing quotations:—

Bog, 1½ to 1½; Carn Brea, 60 to 62½; Devon Great Consols, 1 to 1½ pm.; East Van, 1½ to 1½; Lovell, 16 to 16½; East Caradon, 1 to 1½; Great Laxey, 13 to 13½; Great Wheal Var, 2½ to 2½; Perkins Beach, 7s. 6d. to 12s. 6d.; Pennerley, 2½ to 2½; Parry's Mountain, 5s. to 10s.; Roman Gravel, 17 to 17½; Tincroft, 37½ to 40½; Tankerville, 9½ to 10½; Van, 32 to 35; Van Consols, 3½ to 4½; West Chiverton, 4½ to 5½; Wheal Grenville, 7½ to 7½; Wheal Pevor, 2½ to 2½; West Tankerville, 2 to 2½; Almada, 5½ to 5½; Birdseye Creek, 2½ to 3½; Cedar Creek, 2 to 2½; Colorado Terrible, 4½ to 4½; Cape Copper, 28½ to 29½; Chontales, ¾ to ¾; Don Pedro, par to ¼ prem.; Eberhardt and Aurora, 4 to 4½; Emma, 3½ to 3½; Flagstaff, 3½ to 4; Frontino and Bolivia, 5s. to 10s.; Last Chance, 1½ to 2; Malpas, 1½ to 1½; New Quebrada, 3½ to 3½; New Pacific, 6s. 3d. to 8s. 9d.; Rica, 8 to 8½; St. John del Rey, 185 to 190; Sweetland Creek, 5½ to 5½; San Pedro, 1½ to 2½; Sierra Buttes, 2 to 2½; Teocoma, 1½ to 1½; Utah, 1½ to 1½; Richmond, 6½ to 6½; Blue Tent, 5½ to 5½; Holcombe Valley, ¾ to 1; West Esclair Lie, 3½ to 3½.

The CLEVELAND SLAG WORKING COMPANY, to the formation of which, with a capital of 30,000l., in shares of 10l. each, and for the purpose of manufacturing bricks, mortar, sand, cement, and concrete, reference to which was made in last week's Journal, have given notice that the list of applications will be closed for London on Jan. 5. It is understood that the shares have been well applied for.

The secretary of the ERIE RAILWAY COMPANY, and many of the principal proprietors, desire it to be stated that the so-called American Railway Agency, of Winchester-street-buildings, which has been inviting correspondence with the Erie Bond and shareholders, is in no way connected with the Erie Railway Company, whose offices are in Gresham House. Another false statement, intended to prejudice the company, should also be referred to. A paragraph having appeared in the *New York Herald*, which has been copied in various newspapers in this country, relating to the alleged non-payment of wages for two months by the Erie Railway Company to their men, it is right that the company's stockholders in this country should be informed that a telegram from the office in New York has been received stating the said paragraph to be "sensational and groundless." October pay-rolls all paid, and November pay-rolls now being paid as usual. A large and influential meeting of bondholders of the French HONDURAS LOAN of 1869 was held at the Salle Demarey, rue Richelieu, Paris, on Dec. 19, when resolutions were unanimously passed approving of the conversion of bonds for shares in the Honduras Inter-Oceanic Railway Company (Limited), and supporting the undertaking and appointing two gentlemen to become trustees of the company in conjunction with those appointed. The Eight per Cent. Western Extension Certificates of the Atlantic and Great Western Railroad Company are 1 to 1½ prem. The First Mortgage Bonds of the New York, Boston, and Montreal Railway Company, are 7½ to 7¾. Atlantic and Great Western Railroad Leased Lines Rental Trust Bonds are 7½ to 8½, and the New Issue, 75 to 80. Atlantic and Great Western Third Mortgage, 23½ to 24; Preference Stock, 9 to 11; and the Common Stock, 6 to 8. United States Rolling Stock, 19½ to 20½; the half-yearly interest due 1st January next, on the First Mortgage Construction Bonds, endorsed payable in sterling in London, of the New Orleans, Jackson, and Great Northern Railroad Company, will be paid on and after that date at the counting-house of Messrs. J. Henry Schröder and Company; Powell's Lantwit Collieries have given notice that the debenture coupons due on Jan. 1 will be paid at the National Provincial Bank of England after that date.

ANNUAL REPORT OF THE SCOTCH IRON TRADE.

Dec. 26.—The Iron Trade has enjoyed another year of prosperity, and 1873 will ever be distinguished for the highest prices realised since the introduction of the hot-blast process 45 years ago. The price of warrants for pig iron, springing from 121s. in the beginning of January, advanced to 145s. by the end of February, and thereafter frequently fluctuated within a wide range, according to the views of adroit operators contending for a rise or a fall. The lowest price reached was 101s. 3d. in November. The average for the year is 117s. 3d., against 101s. 10d. in 1872, which is 58s. 3d. per ton above the average of the last 28 years. Special brands, however, such as Gartsherrie, Coltness, Calder, Langloan, Summerlee, and Shotts, advanced from 147s. 6d. to 187s. 6d., declining (with alternate fluctuations) to 112s. 6d. last month. Rails, bars, and plates rose from 10l. 10s. 13s. 13l. 10s. to 13l. 10s. 18s. 18l. 10s. respectively. The quotations to-day for the same are annexed. Although there has existed a steady demand at prices calculated to stimulate production, it is most notable that the quantity of pig iron exported from Scotland is 97,000 tons less than in 1872, and is returned as 993,000 tons. The home consumption, conjoined with the shipments and quantity sent per rail, amount to 1,067,000 tons, realising upwards of six millions and a half sterling; still, according to the returns, there is a decrease of 319,000 tons when compared with those of last year. The stock meantime has been reduced 74,000 tons, and is now 120,000 tons, the smallest since 1857. Our malleable works, foundries, and shipbuilding-yards have, upon the whole, been actively employed. Internally, the trade and commerce of the country were never, perhaps, in a more sound and flourishing condition. Under these circumstances, it is not at all surprising that our iron market was but slightly affected by the sharp and sudden fluctuations in the value of money. We may, however, indulge the pleasing reflection that, as the requirements for iron extend, the improved mechanical appliances and enhanced wages of labour will suffice to meet the demand.

PIG-IRON WORKS IN SCOTLAND—FURNACES.

Proprietors.	Works.	In blast.	Out of blast.	Total.
Wm. Baird and Co.	Gartsherrie	13	3	16
— Ditto	Eglinton	6	—	6
— Ditto	Lugar	4	—	4
— Ditto	Muirkirk	3	—	3
— Ditto	Portland	4	—	4
Merry and Cunningham (Limited)	Glenangoek	8	2	10
— Ditto	Ardeer	4	1	5
— Ditto	Carnbroe	5	1	6
Coltness Iron Company	Coltness	12	—	12
Dalmellington Iron Company	Dalmellington	6	—	6
Monkland Iron and Steel Company	Monkland	7	—	7
Robert Addie and Sons	Langloan	6	2	8
Summerlee Iron Company	Summerlee	7	1	8
James Dunlop and Company	Clyde	5	1	6
Colin, Dunlop, and Company	Quarter	4	0	4
William Dixon, Esq.	Govan	4	1	5
— Ditto	Calder	6	2	8
Shotts Iron Company	Shotts	4	—	4
— Ditto	Castlehill	2	1	3
Wishaw Iron Company	Wishaw	2	—	2
George Wilson and Company	Kinnell	3	—	3
Lochgelly Iron Company	Lochgelly	2	—	2
A. Christie and Company	Lumphinnans	1	—	1
Carron Iron Company	Carron	3	1	4
James Russell and Son	Almond	2	1	3
Henry Cassell, Esq.	Bridgend	—	2	2
Total.		123	31	154

The Master of the Rolls has appointed Mr. Alfred A. Broad (Broad, Broad, and Patterson) official liquidator of the Baganza Gold Mining Company (Limited).

ZINC AND LEAD ORES.

I BUY at the HIGHEST PRICES:—
LEAD ORES.—LEAD-SILVER ORES.—SILVER-LEAD ORES.
ZINC AND LEAD ORES MIXED TOGETHER.
SILVER-LEAD, BULLION, HARD LEAD, &c.
SULPHATE OF LEAD, ASHES, SLAGS, &c.

Particulars by letter.

ARMAND FALLIZE, Ingénieur, à Liège (Belgium)

CAPPER PASS AND SON, BRISTOL,

ARE PURCHASERS OF
ANTIMONIAL LEAD, HARD LEAD, LEAD MATTE, LEAD SLAGS,
SULPHATE OF LEAD, LEAD ASHES, COPPER SLAGS, COPPER REG-
GULUS, TIN ASHES, ZINC ASHES, SPelter DROSS, HARD SPelter
and MIXED METALS, DROSS or REFUSE containing COPPER, LEAD
TIN, or ANTIMONY.

Mr. JOHN HENRY POOLE,

MINERAL AGENT,

LIMPIAS, PROV. SANTANDER, SPAIN.

FOR AMERICAN COMPANIES.

MR. F. CAZIN, MINING AND CIVIL ENGINEER,
Constructor of the Mineral Dressing Works at Rosa Clare, Hardin Co.,
Ills., and at Frumet, Mo.,
PATENTEE OF CAZIN'S CONTINUOUS ORE-PLUNGER JIG (ORE
SEPARATOR).

MANUFACTURER OF ORE-SEPARATING MACHINERY.

Makes Plans and Contracts for Ore Concentration and Smelting Works, guarantees
to work certain quantities at less primitive and running expenses, with better
proportionate yield, than any offered on the North American Continent.
GENERAL AGENCY FOR THE SALE OF AMERICAN FLUOR-SPAR.
Expertising, Surveying, and Reporting concerning Mines and Mineral Lands.
(Compare this Journal, Nos. 1932 and 1945.)

Direct letters to—

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HARDEN AND SON,

MINING ENGINEERS AND GEOLOGISTS,
430, WALNUT STREET, PHILADELPHIA, U.S.A.

WANTED, A MINING ENGINEER.

WANTED, A YOUNG ENGINEER, TO INSPECT AN IRON
ORE MINE in a tranquil part of SPAIN. He will be the manager at a
liberal salary, and a knowledge of the language would be an advantage. All his
expenses will be paid whether place taken or not. Can go out and home within
three weeks.
Address, "Hematite," care of Davis and Co., Advertising Agents, Finch-lane,
Cornhill.

WANTED, A MANAGER or FOREMAN in a LEAD WORKS.—
Must practically understand the business.
Address, stating terms required, to "C. D.," care of H. Greenwood, Advertising
Agent, Liverpool.

WANTED, A SECOND-HAND CORNISH PUMPING-ENGINE,
from 80 to 90-in. cylinder.
Anyone having such to dispose of is requested to send full particulars to HENRY
DUNN, Hafod-y-bwch, Ruabon, North Wales, stating number of years the engine
has been in use.

WANTED, for the PENSTRUTHAL CONSOLS MINES, a
70-inch cylinder PUMPING ENGINE.
Particulars to be sent to MATTHEW GREENE, 84, Gresham House; or Captain
TEAGUE, Carn Brea Mines, near Redruth.

WANTED, a thoroughly competent MINING ENGINEER, to
go to China, to EXAMINE and REPORT upon a COAL MINE, and the
necessary plant for its proper development, and also to SUPERINTEND the
WORKING of the COLLIERY.
Address, stating age, qualifications, and salary required, to "S. D.," care of Mr.
Miller, 16, New street, Dorset-square, London, N.W.

PUPIL.

AGENTMAN connected with EXTENSIVE COAL AND
IRONSTONE MINES and WORKS will have in January a VACANCY
for the above.
Address, "Government C.E.," MINING JOURNAL Office, 28, Fleet-street, E.C.

REQUIRED.—AN EXPERIENCED and ACCURATE
UNDERGROUND DIALLER and LAND SURVEYOR, who is also a
very good DRAUGHTSMAN.—Address, Mr. Eddy, Skipton.

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ADDRESSED WRAPPERS, always in stock, comprising
the NAMES and ADDRESSES of upwards of 300,000 individuals interested
in JOINT-STOCK COMPANIES.
For terms address WALTER S. STRAKER, Lombard Exchange, E.C.

A CAPITAL ENGINEER'S BUSINESS TO BE DISPOSED OF,
five minutes walk from the City. Established 30 years. Important for a
young beginner, with £400 or £500.
Address, "A. B.," MINING JOURNAL Office, 28, Fleet-street, London.

TO IRON MERCHANTS, COMPANIES, AND ALL CONCERNED.

VALUABLE AND EXTENSIVE DEPOSITS OF IRONSTONE,
of Northamptonshire quality, on OWNER'S ESTATE, LEICESTER-
SHIRE. Leases and royalties granted.
For terms, &c., apply to "Owner," Sunninghill, Parkstone, near Poole, Dorset.

FOR SALE, a 54-inch cylinder PUMPING ENGINE.—
Particulars of same to be had of MATTHEW GREENE, 84, Gresham House,
London.

ST. JOHN DEL REY MINING COMPANY

(LIMITED).
Notice is hereby given, that the HALF-YEARLY ORDINARY GENERAL
MEETING of this company will be HELD at the London Tavern, Bishopsgate-
street Within, on WEDNESDAY, the 31st day of December next, at Two o'clock
precisely.

To receive and adopt the directors' half-yearly report.

JOHN HOCKIN, Managing Director.
8, Tokenhouse-yard, E.C., 15th December, 1873.

The Transfer Books of the company will be closed from Thursday, the 26th, to
Wednesday, the 31st December, both days inclusive.

MALPASO GOLD WASHING COMPANY

(LIMITED).
Notice is hereby given, that the ORDINARY GENERAL MEETING of this
company will be HELD at the London Tavern, Bishopsgate-street Within, E.C.,
on TUESDAY, the 30th inst., at One o'clock.

And notice is hereby also given, that immediately after the conclusion of the
business of the Ordinary General Meeting, an EXTRAORDINARY GENERAL
MEETING of the members of the above-named company will be HELD at the
place aforesaid, at which a resolution will be proposed to sanction an increase, by
the directors of the company, of the capital of the company, for such amount, and
upon such terms and conditions as the meeting shall approve of.

The Transfer-books will be closed from the 27th instant to the 20th proximo in-
clusive.

By order,
SYDNEY A. COBBETT, Secretary.
No. 1, Winchester House, Old Broad-street, London, Dec. 16, 1873.

PRINCE PATRICK LEAD MINING COMPANY

(LIMITED).
The directors have DECLARED the THIRD DIVIDEND, at the rate of
TWENTY PER CENT. PER ANNUM, which will be PAID on the 20th January
next.

By Order, THOS. HUGHES, Secretary.
59, Seel-street, Liverpool, Dec. 24, 1873.

DELAWARE AND HUDSON CANAL COMPANY

SIX PER CENT. DEBENTURES OF 1875.
Notice is hereby given, that the COUPON due 1st January, 1874, on the loan of
£600,000, issued through Messrs. GILBEAT A. SMITH and Co., will be PAID by the
Imperial Bank (Limited), 6, Lothbury, on and after that date.

Coupons must be left one clear day for examination.

POWELL'S LANTWIT COLLIERIES

(LIMITED).
Notice is hereby given, that the DEBENTURE COUPONS, due 1st January
next, will be PAID on presentation at the National Provincial Bank of England,
Bishopsgate-street, E.C., on and after that date.

By order, ALFRED GOOD, Secretary.
New Poultry-chambers, 7, Poultry, E.C., Dec. 24, 1873.

THE GORSEDD AND CELYN LEVEL CONSOLIDATED

LEAD MINING COMPANY (LIMITED).

The Directors are PREPARED TO RECEIVE APPLICATIONS
for the FEW REMAINING SHARES of the LAST ISSUE, at
par, £2 fully paid.

Full particulars on application to—
E. J. BARTLETT, Secretary.
Offices, 30, Great St. Helens, London, E.C.

FOR SALE, a VERTICAL DIRECT-ACTING STEAM-ENGINE,
20-in. cylinder, with metallic piston, and wrought-iron piston rod.
Also, a VENTILATING FAN, 20 ft. diameter, 4 ft. wide, connected with the
engine by wrought-iron connecting rod, crank, and shaft.
Apply to COFFIN and Co., Cardiff.

ELFORD, WILLIAMS, AND CO.

COPPER ORE WHARFINGERS,
SHIP BROKERS AND COAL EXPORTERS,
METAL AND GENERAL COMMISSION AGENTS.

SWANSEA.

ELFORD, WILLIAMS, and Co. having erected an assay office, and engaged the
services of a practical Cornish assayer, who will devote his whole time to this branch
of their business, they are now in a position to make correct assays of silver, cop-
per, and other mineral ores, on the most moderate terms.

NICKEL AND COBALT REFINING, AND GERMAN SILVER

WORKS, 16, OZZELL STREET NORTH, BIRMINGHAM.
STEPHEN BARKER begs to inform the Trade that he has the following art-
cles for sale:—REFINED METALLIC NICKEL.
REFINED METALLIC BISMUTH.
OXIDE OF COBALT.
GERMAN SILVER—in INGOTS, SHEET, WIRE, &c.
NICKEL AND COBALT ORES PURCHASED.

THE CLEVELAND SLAG WORKING COMPANY

(LIMITED).
FOR THE MANUFACTURE OF BRICKS, MORTAR, SAND,
CEMENT, AND CONCRETE.

Capital £30,000, in 3000 shares of £10 each,
with power to increase.

£1 to be paid on deposit, £1 on allotment, and the remainder as required at
intervals of not less than two months.

DIRECTORS.

ROBERT STEPHENSON, Esq., The Woodlands (Deputy-Mayor of
Middlesborough)—CHAIRMAN.

ISAAC WILSON, Esq., Nunthorpe Hall (Tees Ironworks, Middles-
borough).

GEORGE NEESHAM, Esq., Park View (Messrs. T. Vaughan and Co.,
Middlesborough).

JEREMIAH HEAD, Esq., Coatham (Newport Rolling Mills, Middles-
borough).

CHARLES BAGNALL, Esq., ex-M.P., Sneaton Castle (Grosmont
Ironworks, Whitby).

WILLIAM GILL, Esq., Grove Hill (Tees Side Ironworks, Middles-
borough).

H. G. REID, Esq., The Newlands, (Managing Director Freehold Land
and Building Company, Middlesborough.)

JOHN RUSHFORD, Esq., builder, brick manufacturer, &c., Middles-
borough.

ENGINEER.
CHARLES WOOD, Esq., Middlesborough.

SOLICITOR—JNO. T. BELK, Esq., Middlesborough.

BANKERS.
The NATIONAL PROVINCIAL BANK, Middlesborough, and Branches.

OFFICE—19, ZETLAND ROAD, MIDDLESBOROUGH-ON-TEES.

The SHARE LIST for LONDON WILL CLOSE on MONDAY,
JANUARY 5, 1874.

Forms of Application may be had at the offices, or of Messrs.
H. L. JORDAN and Co., 9, Union-court, Old Broad-street, E.C.;
and Mr. J. MASON, 27, Crosby Hall-chambers, Bishopsgate-street
Within, E.C.

CORNISH PUMPING ENGINES.—The number of pumping-engines

reported for November is 19. They have consumed 1605 tons of coal,
and lifted 11·2 million tons of water 10 fms. high. The average duty
of the whole is, therefore, 47,100,000 lbs., lifted 1 ft. high, by the con-
sumption of 112 lbs. of coal. The following engines have exceeded
the average duty:—

Crenver and Wheal Abraham—Sturt's 90 in.	Millions	56·9
Ditto	—Willyams's 70 in.	56·2
Dolcoath—85 in.		56·2
West Basset—Grenville's 70 in.		53·6
ditto	—Thomas's 60 in.	50·6
West Chiverton—New 80 in.		52·9
West Wheal Seton—Harvey's 85 in.		59·1

EXPORTS OF COAL.—By the Monthly Circular of Messrs. Higgin-

son, of Liverpool, we learn that the quantity of coal exported in Nov.
was 916,947 tons, against 962,533 tons in the corresponding month
of 1872, showing a decrease of 45,586 tons. The particulars are—

From the Northern Ports, 455,084 tons; Yorkshire, 72,198 tons;
London, 4334 tons; Liverpool, 39,720 tons; Severn Ports, 266,775
tons; and Scotch Ports, 73,836 tons. The increase was—Northern
Ports, 6175 tons. The decrease was—Yorkshire, 7513 tons; London,
103 tons; Liverpool, 29,630 tons; Severn Ports, 10,981 tons; Scotch
Ports, 3534 tons. Total, Jan. to Nov., 1873, 10,588,703 tons; ditto,
1872, 11,321,808 tons; decrease, 733,105 tons.

PRESENTATION OF A MARBLE BUST TO MR. WILLIAM STEVENS.

The colleagues, co-directors of Mr. Stevens in the Burrow and Butson Company,
with some of the largest shareholders, desire to give him a suitable substantial
testimonial of their high appreciation of his many excellent qualities, subscribed
for a marble bust, of the value of 100 guineas, which has been sculptured in best
Carrara marble, life size, by Mr. Thomas Milnes, of 4, Euston-square, in a style and
with a finish and truth of likeness that command the admiration of all who have
the pleasure of seeing it, and of being able to compare it with the original.

The bust was presented to Mr. Stevens at a gathering of the most influential sub-
scribers, at a dinner given to him on Saturday last at the Albion Tavern, Alders-
gate-street; the Chairman of the company, Mr. J. W. Williamson, in the chair.
After the usual loyal toasts, the presentation was made, accompanied by eloquent
remarks from the chair and other speakers, in the course of which allusions were
made to Mr. Stevens's highly distinguished qualities as a man of business, which
have become second nature with him, after many years of indefatigable and most
successful attention to commercial, private, and public enterprises, giving him a
rare experience, which imparts readiness to encompass the nature and bearing of
financial questions, rendering his co-operation and advice upon them even more
valuable than his ever-ready pecuniary support when he perceives that it is legiti-
mately required, and will be judiciously employed. The evening passed off most
satisfactorily to all present.

CANADIAN COPPER PYRITES AND CHEMICAL COMPANY.—We are

informed by the secretary that the directors have resolved to hold the annual meet-
ing of the company on Jan. 21, when the accounts for the past year, and all infor-
mation, will be laid before the shareholders.

DENBIGHSHIRE CONSOLIDATED.—A telegram has been received
at the office of the company during the week to the effect that the discovery of ore
at Parry's shaft is looking exceedingly well.

EAST FOXDALE.—The shareholders have passed resolutions for a
voluntary winding-up, and have appointed Mr. R. Mitchell, of Abchurch Cham-
bers, and Mr. H. J. Wenhams (of the firm of Wenhams and Scrimgeour), Finsbury-
circus, joint liquidators.

LEAD ORES.

LEAD ORES.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
Dec. 19—	Great Laxey	100	£23 5 6	Weston, Son, and Co.
—	Willoughby	25	14 10 6	Jenkins Brothers.
—	Minera	47	14 10 6	Walker, Parker, and Co.
—	ditto	47	14 10 6	Mining Co. of Ireland
—	ditto	23	14 10 6	ditto
—	ditto	72	14 10 6	ditto
—	ditto	21	14 11 0	Mill Dam Mining Co.
22—	East Llangynog	30	14 0 0	Walker, Parker, & Co.
24—	Cefn Brynno.	30	14 0 0	Glover and Robinson
—	Dyffido	80	14 6	Panther Lead Comp.
—	Pennerley	70	14 12 6	Geo. Burr, Pontisford
—	Bog	35	14 5 0	Walker, Parker, and Co.
—	Foxdale	100	23 2 6	Burry Port Smelting

Notices to Correspondents.

* Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt: it then forms an accumulating useful work of reference.

NORTH LOVELL AND TUOLUMNE.—Can the liquidators, or any shareholder in either of these mines, give any information about their present financial state, as they have both been under liquidation for a considerable time, and the undersigned has had as yet no notice of how the liquidation is proceeding?—SHAREHOLDER IN BOTH.

COPPER SCHIST.—If "Inquirer" will forward a small sample of copper schist and his address to the Mining Journal Office, it will oblige—ALPHA.

IMPROVED ORE HEARTH.—If "Smelter" (Newcastle-on-Tyne) will communicate with me personally, I shall be glad to attend to his wishes. The "hearth" is now on trial, and I may have more to say about them by and-by. If people like "Smelter" would give their proper names and address, it would be much better.—C. DOLWORTH: 47, Eldon-st., Newcastle-on-Tyne.

CLEANING FILES.—"D. F." (Tavistock).—There is no difficulty in restoring the sharpness of files which have merely been choked by use. The *Scientific American* recently gave a receipt, which appears to be at once simple and efficient. Boil the files in a solution of water and saleratus (crude bicarbonate of potash) until they are thoroughly cleansed of outside dirt; after which wash them in warm water. Put a pint of warm water in a wooden dish, in which stand as many files as the water will cover. Add to this 2 ozs. of borax and 2 ozs. of blue vitriol finely pulverised together. Stir up the files well, and add 2 ozs. of sulphuric acid by weight, and then ½ oz. of vinegar. The files will turn red at this point in the process. When they again assume their natural colour, take them out and wash them in cold water; after which oil with sweet oil, and wrap singly in brown wrapping paper, which will absorb the oil from the files. The files will be clean by this mode in about half an hour after they are put in. Large mill files can be cut by making more solution, and using a dish narrow and tall, so that the files can stand on the shank to let the scales fall away from them.

TECHNICAL EDUCATION.—"E. J." (West Bromwich).—It has been suggested that there should be a kind of scientific college or technical university, and the teaching of academies and science classes should lead up to this higher scientific education, in the same way as the old grammar schools of England lead up to the universities. No young man goes to Oxford and Cambridge to begin a Latin grammar, nor should any one go to a physical science college to learn simple proportion and the symbols and equivalents in chemistry. There can be no question that a well-arranged scheme, unconnected with and unaided by Government, for carrying out this suggestion would be at once successful and beneficial.

IMPROVING IRON.—"J. B." (Newport).—We do not know whether Franklinite has been imported for improving iron; but no doubt some other correspondent will kindly give the information. The valuable mineral for this purpose would, probably, be the mixture of Franklinite and sesquioxide of manganese, which in New Jersey, U.S., is often found with nearly 60 per cent. of the latter. An analysis made by Prof. H. B. Cornwall, of the Columbia College School of Mines, New York, has recently been published. He found—manganic sesquioxide, 48.38; ferric sesquioxide, 14.07; zinc oxide, 5.25; lime and magnesia, .992; carbonic acid, 3.48; silica, 0.17; and water, 11.29—99.242. The potassic oxide and selenic oxide were not determined.

CHEAP AND SIMPLE BATTERY.—"Student" (Truro).—Perhaps the chloride of lead battery recently suggested by Mons. Pierlot in a note to the French Academy of Sciences will answer your purpose. He places about a pound of chloride of lead at the bottom of a glass or porcelain vessel; then bury in it a plate of lead fixed to a wire of the same metal, and insulated by means of varnish; and next a plate of amalgamated zinc, wrapped in dialysing paper; water must be added every two or three months; the current produced by this battery is described as being at once energetic and constant.

We are compelled to omit several letters from Correspondents and other matters intended for this week's Journal, but they shall appear in our next "C. P."—"A Holder at £100"—"Justice," on Debenture Bonds—"W. M." (Illinois).—"H. S." (Wolverhampton).—We believe so.

SCALE FOR ADVERTISEMENTS.—Our charge for general advertisements is—for six lines and under, 4s.; per line afterwards, 6d. Average, 12 words per line.

THE MINING JOURNAL.

Railway and Commercial Gazette.

LONDON, DECEMBER 27, 1873.

THE MINERAL RESOURCES OF THE UNITED KINGDOM.

The total value of the metals produced, and of the coal and other minerals raised, during 1872, in the United Kingdom, was 70,193,416*l.*, but it is explained that this increase of 12,871,523*l.* is only apparent, being chiefly due to the additional price at which the value of coal at the pit's mouth has been estimated. As it is enacted by the Coal and Metalliferous Mines Regulation Acts of 1872, that correct returns of the produce of every mine shall be made to the Government Inspector for the district in which it is situated, and as these local inspectors have necessarily facilities immensely greater than could possibly be possessed in a central office for verifying the returns and drawing correct conclusions from them, it may be anticipated that the statistics which will in future years be contained in the Government Inspectors' reports will be in every respect more accurate and reliable than any which it has hitherto been practicable to collect under the voluntary system. In the present return the estimate for copper ores is based chiefly upon the returns made to the Stannary Court, and upon the details of the public ticketings in Cornwall and at Swansea, and it is shown that nearly 92,000 tons of ore were raised, worth in round numbers 450,000*l.* The production of copper ore in the United Kingdom during 1873, as will be seen from our ticketing tables published in another column, has remained about stationary so far as regards quantity, but in consequence of depression in the copper trade the smelters were enabled in the present year to purchase ore containing 8411 tons fine copper for 600,000*l.* instead of having to pay 683,000*l.*, as they had in the preceding year for 8110 tons; the value of copper ore has thus fallen about 12 per cent. But we are here giving figures which will only be officially published twelve months hence, and will, therefore, content ourselves with repeating the hope expressed last year, but unfortunately, not realised, for the statistics for 1872 are two months later than ever that under the new system, the returns may be still more complete and yet more promptly obtained; and that, therefore, the publication of the Mineral Statistics of the United Kingdom may be effected at an earlier period of the year in future. Subjoined is the general summary for the two last years, in order that the movement of the several products may be compared:—

MINERALS.	Tons.	Value.	Tons.	Value.
Coal*	117,552,028	235,205,608	123,497,315	245,311,143
Iron ore	16,234,889	7,870,572	16,584,557	7,774,874
Copper ore	97,129	387,118	91,983	443,738
Tin ore	16,272	1,030,334	14,246	1,246,135
Lead ore	93,968	1,155,770	83,968	1,146,165
Zinc ore	17,739	56,239	18,543	73,551
Iron pyrites (sul. ore)	61,973	64,897	65,915	39,470
Silver ore	4,149	15,519	5,172	17,964
Arsenic	997	1,396	3,327	5,227
Grosses, ochres, &c.	20	228	88	993
Wolfram and tung. soda	5,545	22,958	7,773	38,865
Manganese	2	98	2	—
Nickel	2 cwt.	14	2	—
Bismuth	5,512	3,859	9,083	7,078
Fluor spar	81	25	81	40
Cobalt ore	3	120	1	20
Chloride of barium	—	—	63	130
Clays, fire and fire (estd.)	1,255,000	475,000	1,200,000	450,000
Earth minerals, various (estimated)	—	600,000	—	650,000
Salt	1,505,725	752,862	1,308,498	654,745
Coprolites (estimated)	36,500	51,000	35,000	50,000
Total value of minerals produced		247,494,400		258,913,541

* In the evidence given before the Select Committee of the House of Commons in 1873, on "the present dearth and scarcity of coal," it was said that the rise in wages added 1*l.* 6*d.* to the cost of getting a ton of coal.

It will be seen that there was an increase both in the quantity and value of the zinc ore raised as compared with the preceding year; but this improvement has not continued during 1873, if we may judge from complaints heard at meetings of mine companies that mines producing blende cannot at present prices be worked at a profit. Of iron pyrites a few thousand tons more were raised in 1872 than in the preceding year, and the price was about 50 per cent.; but in this case also the improvement has not continued. The yield of arsenic was 25 per cent. higher, but the price appears to have been somewhat lower. It was recently stated in the *Mining Journal* that the demand was very limited, the larger proportion being produced by the Devon Great Consols Company, and that a small in-

crease in the supply would probably lead to a large decline in price. The variation in the yield of the other ores require no special comment.

METALS OBTAINED FROM THE ORES ENUMERATED.	1871—Tons.	Value.	1872—Tons.	Value.
Iron, pig	6,627,179	£16,667,947	6,741,929	£18,540,304
Tin	10,900	1,498,750	9,560	1,459,990
Copper	6,280	475,143	5,703	583,232
Lead	69,050	1,251,815	60,485	1,209,115
Zinc	4,060	92,743	5,191	118,076
Silver	761,490	190,372	628,920	157,230
Other metals (estimated)	—	3,000	—	2,500
Total value of metals		£20,179,770		£22,070,447

ABSOLUTE TOTAL VALUE OF THE METALS AND COAL, WITH OTHER MINERALS, WHICH ARE NOT SMELTED (EXCEPT BUILDING STONES, LIME, SLATES, AND COMMON CLAYS), PRODUCED IN THE UNITED KINGDOM:—	Value of the metals produced	Value of the coal	Value of other minerals
	£20,179,770	£22,070,447	£5,311,143
		35,250,268	1,911,826
		1,911,826	1,811,826
Total value		£57,321,893	£70,193,416

Concerning the returns made under the Mines Regulation Acts of 1872, colliery owners and mine adventurers may well be congratulated that the letter of the Acts has been complied with as to the keeping secret of the returns confidentially made to the Inspectors; even our esteemed correspondent, Mr. ROBERT HUNT, F.R.S., the Keeper of Mining Records, has not been permitted to examine them. In his introduction to the Statistics, with an early copy of which he has, as usual, favoured us, he states that as respects coal it has become a question, seeing how closely the progress of our manufacturing industries are connected with the production and cost of fuel, to determine, for each year, with all possible accuracy, the rate of increase in the production of coal from the collieries of the United Kingdom. Up to 1871 voluntary returns formed the basis upon which the returns of coal given in the Mineral Statistics were computed. Circumstances beyond control, in 1871, rendered it imperative to adopt, instead, the returns which had been made to the Colliery Inspectors, and these gave a rate of increase above that which was the rate in previous years. Again, for the year 1872, under the operation of the "Coal Mines Regulation Act, 1872," the returns made by the Inspectors to the Secretary of State for the Home Department are the sources from which the production of coal given in the following pages are drawn, and the only sources available. The operation of clause 38 of this Act is to limit the examination of those returns to the Inspectors and the Secretary of State. Consequently, the Keeper of Mining Records has not been permitted to examine them, and he has no means of ascertaining whether or not errors have arisen in making those returns, or in the computation of the aggregates, when they are made. The only means by which he can this year check the returns as they are now given is by a cautious examination of the distribution of coal. In the present volume Mr. HUNT has given great attention to this portion of the subject, and in future Journals it will be more fully referred to, as well as the details concerning the several minerals, &c., embraced in the return.

THE COPPER TRADE.

During the quarter ending Dec. 31 the quantity of copper ore, the produce of Cornwall and Devonshire, sold at the Cornish Ticketing, was 11,864 tons, which contained 870 tons 19 cwt. fine copper, and realised 52,236*l.* 16*s.*, being equal to an average of 4*l.* 8*s.* per ton of ore, and 60*l.* per ton of copper in the ore. During the same period the British, colonial, and foreign ores sold at Swansea amounted to 7995 tons, which contained 1181 tons 9 cwt. of fine copper, and realised 90,772*l.* 7*s.*, being equal to an average of 11*l.* 7*s.* per ton of ore, and 76*l.* 16*s.* 7*d.* per ton of copper in the ore. The average produce of the ore sold at the Cornish Ticketings was 72 per cent., whilst that sold at Swansea gave an average produce of 14½ per cent. From this it will be seen that the aggregate sales by ticket were 19,859 tons of ore, containing 2052 tons 8 cwt. of fine copper, and realising 143,009*l.* 3*s.* The subjoined is a summary of the periodical sales at the Cornwall and Swansea Ticketings respectively. The ores sold at the Cornwall Ticketings were—

Date.	Standard.	Prod.	Price.	Per unit.	Tons.	Fine cop.	Amount.
Oct. 2...	25 11 0	7	24 1 0	115.64	2125	149 <i>l.</i> 13 <i>s.</i>	8,607 8 0
" 23...	23 9 15 0	7	4 3 6	12 6	2779	196 11	1,716 1 6
Nov. 6...	26 9 0	7½	4 9 0	12 0	1334	99 14	5,949 15 0
" 26...	26 9 10 0	7½	4 13 0	12 4	2202	165 8	10,236 13 6
Dec. 4...	25 5 0 8	8	4 18 0	12 3	1557	124 18	7,617 15 0
" 18...	25 9 18 0	7½	4 7 0	12 0	1867	135 5	8,109 2 0
Total for the quarter					11,864	870 19	£52,236 16 0
Quarter ending Sept., 1873					14,405	982 10	55,408 8 6
Quarter ending June, 1873					13,174	910 11	56,173 12 6
Quarter ending March, 1873					15,652	1018 5	72,617 11 0
Total for the year					55,095	3782 5	£238,536 8 0
Showing a quarterly average of					13,774	945 11	59,134 2 0
Corresponding quarter Sept., 1872					14,405	1079 18	67,456 8 0
Total for the year 1872					65,416	4027 3	315,320 13 0

The ores sold at the Swansea Ticketings were—

Date.	Standard.	rod.	Price.	Per unit.	Tons.	Fine cop.	Amount.	
Oct. 14...	2101	18 0	...14½	211 8 0	158.104	1813	290 <i>l.</i> 12 <i>s.</i>	£20,646 7 0
" 28...	28	9 0	...15½	11 12 0	15 4	1117	158 19	13,002 15 0
Nov. 18...	28	9 0	...13½	10 2 2	15 1	1091	255 8	20,124 14 0
Dec. 2...	28	9 0	0 15	11 7 0	15 0	1714	256 2	12,459 1 0
" 16...	28	9 0	...16½	12 7 8	15 3	1360	229 10	17,521 7 0
Total for the quarter						7995	1181 9	£90,772 7 0
Quarter ending September, 1873						6706	1347 14	101,144 0 6
Quarter ending June, 1873						6652	1299 2	102,521 3 6
Quarter ending March, 1873						5980	800 2	67,997 19 6
Total for the year 1873						26,427	4028 7	£362,435 10 6
Showing a quarterly average of						6,607	1132 2	90,608 17 8
Corresponding quarter Dec., 1872						7,393	1358 3	107,887 1 0
Total for the year 1872						24,088	4181 14	367,294 7 6

ENGLISH RAILWAY IRON ABROAD.

It is rather curious to observe that the great American panic, which was inaugurated in mid-September by the collapse of the eminent financial house of JAY COOKE and Co., which increased in gravity in October, and which only partially subsided in November, did not altogether have the crushing effect upon the demand for our railway iron in the United States which it might, *prima facie*, have been expected to produce. The exports for September of British railway iron to the great Republic were 10,642 tons, against 37,732 in September, 1872. In October the exports sunk to 8064 tons, as compared with 31,957 tons in October, 1872; but, strangely enough, the shipments rallied in November to 17,919 tons, against 31,064 tons in November, 1872. It had been calculated that our aggregate exports of rails and accessories to the United States in 1873 would amount to 170,000 tons, but they are more likely now to come out at 190,000 tons or 195,000 tons. The only explanation which can be given for the November return is that ships may not have been obtained readily in September or October, and that some of the virtual deliveries of those months may have been officially recorded in the November figures. We shall watch the shipments of our railway iron to the United States during the next few months with some interest. The prosecution of railways in the extreme Western States of America is, no doubt, virtually at an end for the present; but, on the other hand, the railroad interest of the Central and Atlantic States may still be said to be in a solid and satisfactory condition, and as the more recent advices to hand from such great centres as New York, Philadelphia, and Boston point to a general recuperation in commercial affairs, it does not appear likely that the shipments of our railway material to our Transatlantic cousins will experience a further contraction. American observers, on the contrary, think that some reduction will take place in Great Britain in the price of coal and labour; and, this reduction once established, they consider that English iron will once more make its way in the United States, to the detriment of American production. So strongly impressed are some American ironmasters with this conviction, that it is not improbable an appeal will be made to Con-

gress to increase the duty now levied on English iron imported into the United States; and as the Washington Treasury stands in need of additional revenue, it is quite on the cards that the American Legislature may endeavour to raise some of that extra income at the expense of British industrialists.

As regards our miscellaneous iron customers, we must soon look for, at any rate, a temporary or partial decline in the Russian demand, which has so materially helped to keep English rolling-mills going during the last few months. The Northern Colossus is now bound in the icy chains of a northern winter, and her ports will remain closed more or less until May. However, Russian railways now enable deliveries to be made to Russia to some extent by land, and we find in November that 12,029 tons were cleared from English ports for Russia. The shipments of rails and accessories made to Russia from Great Britain in the first eleven months of this year show an increase of upwards of 60,000 tons as compared with the corresponding period of 1872; and, as regards Russia, Great Britain appears to have dealt successfully with European competition. In the New World our railway iron has materially lost ground this year, partly in consequence of its greater dearthness, and partly, also, by reason of the severe financial panic which has told so sorely upon American commercial life; but in Russia we have, strangely enough, found a not very inconsiderable compensation. There has also been an increased enquiry this year for our railway iron in countries which are rather close neighbours of Russia—Sweden and Norway. The demand for our railway iron in British America has rather sensibly declined this year, having fallen to 54,534 tons in the first 11 months of 1873, as compared with 76,304 tons in the first 11 months of 1872. On the other hand, it is noticeable that we are sending more and more of our railway iron to the Australian colonies, our shipments to that increasingly important group having risen from 13,146 tons in the first 11 months of 1871 to 22,154 tons in the first 11 months of 1872, and 27,788 tons in the first 11 months of 1873. The Australian consumption of English rails is even now not to be despised, and it seems destined to assume larger proportions.

MINERS' STRIKES IN 1873.

Of the many strikes of miners in 1873 scarcely any were in connection with either lead, copper, or tin mines, the workmen connected with which have been in receipt of very moderate wages, and have not participated in the prosperity of those engaged in the raising of coal or ironstone. In those cases, however, where the men have had their wages nearly doubled disputes have been of frequent occurrence, and up to the present time the advances made, large as they are, have not been appreciated to the extent as to find the new year ushered in by freedom from strikes. As it was at the commencement of 1873 so it is at the close; for we find that up to the present time, in several districts, capital and labour are at variance, and a large number of men unemployed. This is the more surprising seeing that those persons engaged in the coal and iron trades, whether as skilled or unskilled labourers, are receiving nearly twice the amount of money they did a couple of years ago, and augurs anything but well for the time that is evidently fast approaching when those industries upon which the great bulk of labour in this country depends will be unable to pay anything like the present wages. Already the price of raw and manufactured iron is very much less than it was during the summer, whilst coal, if the London market is a fair index of its cost, must have decreased fully 20 per cent. since February last. Yet with those facts before them, and with the strongest possible indications of a much greater reduction in the price of the two great products upon which our prosperity depends, as shown by the falling off in our exports, as well as in the home consumption, workmen show no disposition to meet their employers under the changed circumstances, but, on the contrary, seek and demand an increase of wages. The year, indeed, has been one of unexampled prosperity; at the same time it has been the witness of a succession of disputes between miners and mineowners, as well as ironworkers, that have been highly prejudicial to the interests of all. A brief résumé of some of the most "striking" events of the year cannot be given at a more appropriate time, and may well be pondered over with advantage to all the parties interested.

The first month of 1873 saw one of the greatest strikes and lock-outs of the century, when upwards of 60,000 persons connected with the coal and iron trades of South Wales were dependent for existence on the support of the public. The strike lasted 12 weeks, entailing a vast amount of misery, without any advantage being obtained by the men, notwithstanding the high-flown promises of the Amalgamated Association of Miners, the originators and abettors of the dispute. After the men at South Wales had cried "peccavi" some little disturbance took place in the Forest of Dean, and also in the Bristol districts, but it did not lead to any serious consequences. Warwickshire, where a Union only existed during a portion of the present year, was for the first time the scene of a strike for the limitation of the working hours to eight per day. The men were successful, so that the eight-hours system may be said to be now general throughout the country. In Leicestershire, where an association was also formed during the present year, the men struck for wages and with regard to the weighing of coal, but the dispute was not of long duration. In the adjoining county of Derbyshire there were stoppages and strikes almost from one end of the district to the other—from Pilsley to Dronfield—and a great deal of time was consequently lost. Wages and weighing were the principal causes which led to the men leaving work. In strict justice, however, we may say that at Staveley, where the men are all "free-traders," or non-unionists, there were no disputes or demands, all that could be desired in the shape of increased wages having been anticipated and given by the managing director, C. MARKHAM, Esq. Proceeding northwards into Yorkshire, we find that, whilst there was no general strike, there were several large collieries stopped for a time. In the southern part of the West Riding, at the Holmes, near Rotherham, the men were out for a short time, as well as at Mr. DAY'S and other places. The EARL FITZWILLIAM'S collieries, at Elscar, were closed for some weeks, owing to the demands of the men not being conceded, but an amicable arrangement was made, resulting in his lordship inviting all his workpeople to visit him, and spend the day at his magnificent seat at Wentworth-Woodhouse, where they were most hospitably entertained. At Havercroft, some five miles from Barnsley, the men at the pits of Lady GALWAY, Messrs. LEATHER and LITTLEWOOD, and Messrs. SUTCLIFFE and Co. were set down on Saturday last, the men acting in opposition to the orders of the association to which they belong. In West Yorkshire, also, some of the collieries have had to stand, the last being those of Capt. INGHAM, at Thornhill. Staffordshire has been the scene of some few squabbles, but not of any serious consequence. But such has not been the case with regard to Lancashire, the head-quarters of the Amalgamated Association of Miners, and the home of Mr. HALLIDAY, Mr. PICKARD, and other leaders. At several places disputes, threats, and stoppages have taken place, and at the present time upwards of 1000 men are out in the Burnley district, and receiving support from the Amalgamated—and are likely to do so, seeing that their places have been filled by metallic miners from Cornwall, who are enabled to make double the amount of wages they formerly earned in raising copper ore, and in a great deal less time. The colliers of North Wales have had their turn as well as others, and at the Aston Hall Colliery, near Hawarden, and of which Mr. GLADSTONE, the Premier, is the lessor, struck for an advance of wages, but were not out very long. Demands were also made at some of the pits in the Buckley Mountain, and at Queensferry, but without any interruption to work. In Scotland the men at several pits were out at the commencement of the year. The North of England, it may be said, has been particularly fortunate in being tolerably free from any interruption to work, so far as regards the raising of coal. Such, however, was not the case with the ironstone miners, for 7000 of those in the Cleveland district struck for an advance of 2*d.* per ton. The matter was left to arbitration, and early in July the arbitrator, Mr. RUPERT KETTLE, decided against the men. In October a number of ironstone miners in Lincolnshire also struck for an increase of wages, but the demand as asked for was not conceded. We may also say

that there has been strikes on the part of ironworkers, including puddlers, millmen, shinglers, and mechanics, whilst only lately 500 Bessemer hands struck at Sheffield against a proposed reduction of wages.

Having so far noticed what was done during the past 12 months, we may add that the new year will open with a strike at the Havercroft pits, Barnsley, as well as at the Bessemer works of Sir J. Brown and Co. (Limited), Sheffield, and also of the engine-hands at Sheffield. In Lancashire there will be 1000 colliers out, whilst 1600 engineers are likely to be on strike in London on Jan. 1. To those connected with the coal and iron trades of the country, who expect either an increase of wages or that existing prices are likely to continue, we would ask them to look at the facts patent to all—that the great increase in the cost of coal last year has led to the opening out of collieries in nearly all parts of the world, and to a marked decrease in our exports of raw and manufactured iron—so that a reduction in the price of these products, as well as of wages, is almost inevitable. The year now all but closed will, consequently, have left behind it a history that will have a most important bearing on the future of the staples of the country as well as of the relations between capital and labour.

AUSTRALIAN TIN.—We are favoured by Mr. S. L. BENSUSAN, of Sydney, New South Wales, with an important communication with regard to the position and prospects of the Australian Tin Trade and Tin Mining Interests, from which it will be seen that New South Wales and Queensland already export tin and tin ore representing about half as much metal as the whole supply of Great Britain, that the supply is regularly increasing, that it has only taken about 18 months to attain a trade of this magnitude, that new discoveries are continually being made, and that the industry is still considered by the Australians to be completely in its infancy. The mines appear to be very promising, and to offer an excellent field for enterprise, but the original holders are demanding such excessive premiums that it is extremely doubtful whether British capitalists will be induced to lend their aid. Mr. Bensusan's letter, together with much other interesting information on the subject, will be found in the Supplement to this day's Journal.

THE NEW COLLIERY RETURNS.—DUTIES OF OWNERS AND MANAGERS.—As the returns which the "Coal Mines Regulation Act, 1872," directs shall be made by the owner, occupier, or manager of every mine on the first of January every year includes a large number of important particulars it is desirable that no time should be lost in giving orders for the collection of the necessary facts, more especially as it is understood that the Secretary of State will direct legal proceedings to be taken in every case of neglect of the enactment. The 69th section enacts that on the date mentioned, and at any other time when required by the Secretary of State, the return shall be sent to the Inspector for the district, and that it must state the average number of persons employed above ground and under ground respectively; the mode of ventilation, whether furnace or fan, with description; diameter and depth in feet of the down-cast and up-cast shafts; the number of splits and the quantity of air, in cubic feet, per minute in each; the average length and sectional area of the airways; and the average total quantity of fresh air, in cubic feet, per minute. The return must be made in a particular form, copies of which, it is believed, have been forwarded to every person affected by the clause, but in case any may have failed to receive it application should at once be made to the Government Inspector for the district. On Feb. 1 another return is required, which it is equally important should be made. The February return must specify the quantity of coal or other mineral wrought in the mine, and the number of persons ordinarily employed below ground and above ground, distinguishing the persons employed below ground and above ground, and the different classes and ages of the persons so employed whose hours of labour are regulated by the Act. The returns will prove of the utmost possible value to the general industries of the country, and as the Act amply provides against the figures referring to individual collieries being made public, it may be anticipated that the enactment will be willingly complied with.

DIRECT-ACTING STEAM STAMP.—For some time past Ball's direct-acting steam-stamp has been coming much into favour amongst the Lake Superior copper miners, and each new stamp erected appears to give greater satisfaction than its predecessor. The first stamp was designed to crush 60 tons of moderately hard rock per diem, and this was soon followed by others capable of dealing with 80 and 100 tons per diem respectively, the latest and best duty being that performed by the stamp at the Hecla Mill, which has repeatedly crushed 140 tons of conglomerate rock in 24 hours. The large first cost of the stamp having, however, prevented its adoption at many of the younger mines, the Messrs. Ball turned their attention to the perfection of a smaller stamp, equal to the treatment of about 40 or 50 tons per day, and which could be supplied for about \$6000, or 1200*l*. The power required to operate it will not exceed 20-horse power, so that a mill complete with one of these small heads, 35-horse power boiler, 15-horse power engine, and the necessary dressing machinery, can be built complete ready for operation for \$20,000*l*, or 4000*l*, and competent judges declare that such a plant would be in every respect efficient.

THE LARGEST TUNNELS OF THE WORLD.—The completion of the Hoosac tunnel and the rapid progress of the Sutor have caused the miners both in the East and in the West of America, to look with interest upon what has been and is projected in connection with tunnel driving. It is in Germany that the great tunnels have been constructed, and these have been made exclusively for mining. There is the great tunnel at Freiberg, 24 miles long; the Ernst-August and the Georg at Clausthal, 13½ and 10½ miles respectively; the Joseph II. at Schennitz, 9½ miles; the Rothschildenberg at Freiberg, 8 miles; the Mont Cenis, 7½ miles, which about completes the European list. In the United States we have the Hoosac, in Massachusetts, 5 miles long, the completion of which was noticed in last week's Journal; the Sutor, in Nevada, for opening up the celebrated Comstock lode; this tunnel, although only 4 miles long, will, with its ramifications to the various mines of the district, prove one of the most important in America; the Sierra Madre tunnel at Black Hawk, commenced during the present year, and which will be 12 miles long, as well as the San Carlos and Union Pacific tunnels, which are under 2½ miles. The Ernst August tunnel was driven at the rate of a mile per annum, and it will be interesting to notice how long it will take the Americans, with all the approved appliances at present to command, to complete the nearly similar Sierra Madre tunnel.

THE CHANNEL TUNNEL.—Mr. WILLIAM AUSTIN, C.E., well known as one of the first projectors of the submarine tunnel between France and England, unhesitatingly repudiates the statement that "henceforth the idea of constructing an Anglo-French tunnel as a commercial enterprise must be regarded as Utopian," and he writes that his scheme for a channel tunnel, on which he has incessantly laboured during 20 years, was submitted 10 years ago to the late Emperor of the French, by whom it was highly extolled; that about two years ago it was submitted to Mr. Thiers, who also expressed his approval of it; that subsequently a commission to examine it and other projects was appointed by Mr. De Larey, then Minister of Public Works, and now again in the same office; and that it is one of the few projects out of a great number which are still undergoing examination by French engineers and functionaries. Mr. Austin denies the accuracy of the statement that the tunnel would not command sufficient traffic to permit of a suitable dividend on the 10,000,000*l* required to construct it; and he adds that as to the grey chalk being the favourite stratum with professional men, it is quite the contrary.

EXPORTS OF RAILWAY IRON.—The exports of railway iron from the United Kingdom in November amounted to 70,781 tons, compared with 81,792 tons in November, 1872, and 73,284 tons in November, 1871. In the total for November this year, Russia figured for 12,029 tons; the United States, for 17,919 tons; and Australia, for 6127 tons. In the eleven months ending Nov. 30 this year the aggregate exports were 737,258 tons, as compared with 881,610 tons in the corresponding period of 1872, and 919,890 tons in the corre-

sponding period of 1871. In this total relating to the first eleven months of this year Russia figured for 160,401 tons; the United States, for 179,955 tons; British America, for 54,534 tons; and Australia, for 27,788 tons. The exports have increased this year to Russia, Sweden and Norway, Holland, France, Spain, the Spanish West Indies, Chili, British India, and Australia; but they have decreased to Germany, Austria, Egypt, the United States, Brazil, Peru, and British America. The value of the railway iron exported in November was 956,203*l*, as compared with 979,428*l* in November, 1872, and 679,965*l* in November, 1871; and in the eleven months ending Nov. 30 this year, 9,748,283*l*, as compared with 9,428,082*l* in November, 1872, and 7,557,749*l* in November, 1871.

AUDIBLE SAFETY-LAMP.—An ingenious and efficient apparatus for preventing explosions in collieries has been invented by Mr. ALDIS (manager) and Messrs. HYDE Brothers (engineers) of the Seend Ironworks. On one side of the flame of an ordinary safety-lamp they affix a small brass plate, which protects from the flame a small brass rod, at the upper part of which is a small piece of fusible metal. In presence of a dangerous accumulation of gas the fusible metal melts, detaches a brass rod, and releases a sliding brass case, which falls over the flame and instantly extinguishes it. By the same action this case falls upon an electric detent, and an alarm is given throughout the whole of the workings, even to the pit's mouth, if required. The improved lamps are suspended from the roofs of the different workings where the gas would be supposed to accumulate; and the bells communicating with each other all the bells in the colliery would simultaneously give an alarm upon the presence of a dangerous quantity of gas. Thus every man in the pit would have ample warning of danger, and sufficient time to secure his property and make his escape.

REPORT FROM CORNWALL.

Dec. 24.—In the absence of any very striking matter to record in the course of mining matters during the past few days it will be well if we take a rapid survey of the events of the year with more immediate relation to the prospects of the future. The year has been more chequered than its predecessor. There has been nothing approaching a *furor*, and while several mines have been abandoned—some most unwisely—fewer new ones have been started. The "knockings" have been fewer than would have been the case had more of the schemes projected in the spring of 1872 got beyond paper. Even under conditions of excitement it still remains the rule that, speculative as many ventures must be, and as some of the best have been, very few mines that have not fair *prima facie* grounds for prosecution ever get into the market. There are exceptions to this, but they are not numerous.

When the year opened there seemed to be every reason to anticipate a season of steady, if not brilliant prosperity. Not quite such success as was achieved in 1872, but, at least, something much better than the results of 1871; and such would unquestionably have been the case but for adventitious circumstances, with which the mines and the miners *per se* had nothing whatever to do. The winter of 1872-3 was marked by a long succession of heavy rains, which greatly increased the pumping work of the principal mines. As a rule, it takes some days, perhaps even weeks, for the effects of an exceptionally wet or dry season to render themselves manifest at the bottom of the mines; but sooner or later they have to be met. And what made this great increase of pumping work such a peculiar burden was the high price of coal. The average cost of mine coal under ordinary circumstances was from 13s. to 15s. per ton. Under the influence of the colliers' strikes, and other causes to which we need not here further allude, the price rapidly rose, and the stocks in the county rapidly fell, until managers were glad to get hold of anything to keep their engines going, and in some instances they paid 35s., or even 2*l*. per ton for stuff called coals, for which they would not have given 5s. twelve months before. Things are by no means so bad now. There are mines in which, in consequence of the distance of carriage, mine coals cost still 30s., and even more, per ton; but, taking the average, the cost on the mines may be put at 25s. to 27s. This is somewhat less than the price at the commencement of the year—a shilling or so per ton, but still it is practically double what used to be paid. A very few figures will show how much of the temporary depression in Cornish mining—for it is no other—is traceable to this one cause. There are mines which, like Dolcoath, have been spending about 1000*l*. a month in this one item—there are many in which the amount reaches 500*l*. Throughout the mines of the county at least 300,000 tons are consumed annually. Taking the average cost at 25s., and the average rise at only 10s., which is an under-estimation, we have at once 150,000*l*, which should have gone into the pockets of the adventurers, but which has been shared by the coal owners, coal merchants, and colliers. The advances in iron and timber, and other materials, have also tended to augment the depression, but are of minor importance. Iron has fallen somewhat, and confident hopes are now entertained that a substantial drop in coals will be seen ere long.

The reduction in the make of iron will greatly diminish the consumption of coals, and hence some fall is inevitable. There are good authorities who reckon that the drop will be at least 10s. per ton. It only needs some such economy of expenditure as this to make many even struggling mines great and possibly lasting successes.

Still, had the miners been able to obtain a good price for their produce the advances in coal and materials would have been so successfully met as to have made the list of dividend mines for the year much larger than it is. Had the tin standard kept up—the copper standard is of less importance now—the extra expenditure in these directions would not have been so much felt; or even with the standard at its present figure, had coals remained at their former price, very substantial profits could have been made. It is a falling standard in conjunction with a high price of mining essentials that has thrown 1873 back in the race. Single handed, either could have been met successfully, together they have proved too great a strain. However, this untoward condition of affairs is not likely to continue.

So far as the Tin Standard was concerned the year opened well, with a rise of 3*l*. all round on New Year's Day. There was another rise of 4*l*. in March, but since then, with the exception of a slight recovery of 3*l*. in June, the course has been persistently downward. In May the standard was 20*l*. below the figure at which it stood that time twelve months. In November it was 20*l*. below the point reached at the commencement of the year, and 24*l*. below that at which it stood in March. We give a complete list of the fluctuations at per cwt.:

	Common.	Superior common.	Fine.	Superior fine.
Jan. 1	131s.	132s.	133s.	134s.
March 18	132s.	133s.	134s.	135s.
April 18	133s.	134s.	135s.	136s.
April 22	129s.	130s.	131s.	132s.
May 1	128s.	129s.	130s.	131s.
May 11	126s.	127s.	128s.	129s.
May 27	124s.	125s.	126s.	127s.
June 10	122s.	123s.	124s.	125s.
June 18	125s.	126s.	127s.	128s.
July 2	123s.	124s.	125s.	126s.
July 5	121s.	122s.	123s.	124s.
July 19	118s.	119s.	120s.	121s.
Sept. 30	116s.	117s.	118s.	119s.
Nov. 6	112s.	113s.	114s.	115s.

From this it will be seen that in April there was a fall of 5*l*. in one week; that in May the fall was 6*l*., and in July 7*l*. The total drop in the year has been 24*l*. These reductions have been mainly assigned to the extra quantity of tin thrown upon the market by the importations from Australia. It is very difficult to ascertain what these importations are. They have been as low as 3000 tons, and as high as 5000 tons for the year; and it has been contended, as against the smelters, that they have very little more than made up for the decreased production of the mines of Cornwall. In 1867 the quantity of black tin raised in the Stannaries of Cornwall and Devon was only 11,066 tons from 117 mines. In 1871 it was 16,272 tons from 145 mines. That there has been a falling off since then is admitted, but the estimates vary from 300 tons a month down to 60. A very careful calculation made in the middle of the year put the monthly produce from 182 mines at 1339 tons, or 16,068 tons a year; but on the average of the twelve months, this would clearly be in

excess. The mines of Illogan were estimated to produce 283 tons a month; those of Camborne, 172; and those of St. Just, 120. If we put down the produce of black tin from the mines within the Stannaries at 14,500 tons for the year, therefore, we shall not be far off the truth. Of this Devon will have contributed less than 500 tons; and the great mining district of Cornwall, lying between and around Camborne and Redruth, where Tincroft, Dolcoath, Carn Brea, the Bassets, the Roskears, Cook's Kitchen, East Pool, the Crofty, Pednandrea, and other well known mines are situated—upwards of 6000. The fluctuations in the copper standard have been frequent, but by no means so extensive as those of the tin standard, nor even if they were would they have the same influence on the mining fortunes of the county. There are barely half the number of copper mines at work now that there were in 1863, and the production of copper has, therefore, greatly decreased. Many of the mines that ten years since were producing copper have since changed either wholly or in part to tin. This will partly account for the decrease. The main cause has, however, been the steady decline since that time in the average copper standard. As compared with 1872 the difference is less marked, but still there is a falling off. Copper mines, almost equally with tin, are thrown back by the high price of coals and materials—not quite, since, as a rule, they are shallower—and though, as we have stated, there has not been such a heavy fall in the copper standard as there has been in the tin, still in its case, likewise, the year has by no means fulfilled the promise of its commencement. The average copper standard on Jan. 2 was 115*l*. 6s., with a produce of 6*l*. On May 22 there was a drop, which created quite a panic. In consequence it was said of a strike of the men employed at the rolling mills in Wales, there was a general disinclination on the part of the smelters to effect purchases, and the standard accordingly fell to 90*l*. 12s. for a standard of 6*l*. This made a loss to Devon Great Consols alone of 1000*l*.; and that mine, with several others, resolved to stock rather than sell, until prices improved. Fortunately, they had not to wait long. The reaction at the next sale carried the pendulum more than half way back to the point from which it started. The highest price realised for the year was at the Truro Ticketing, Jan. 25—117*l*. 12s. for a produce of 6*l*.; the lowest, that quoted above.

Quarter ending	Ore.	Amount.	Aver. standard.	Produce.
March	15,562	£72,617	£113 2 6	69-16
June	15,174	66,173	101 10 0	67-5
September	14,405	55,408	96 18 0	61-16
December	11,284	52,237	97 4 8	7-6-16
	54,405	£236,435	£102 3 9½	613-16

Although in the production of new companies 1873 can bear only faint comparison with 1872, it has by no means been unfruitful in this particular. Among others we may mention Prideaux Wood (tin), capital 10,000*l*., in 5*l*. shares; Tretoil (tin and iron), capital 30,000*l*., in 1*l*. shares; Bowden Hill (manganese), capital 12,000*l*., in 1*l*. shares; St. Breward Consols, capital 62,600*l*., in 1*l*. shares; St. Stephen's (hematite iron ore); East Polberro (tin and copper), capital 12,500*l*., in 2*l*. shares; Great South Chiverton (silver-lead), capital 19,665 shares, 35s. paid; North Dartmoor (tin); Native Iron ore, capital 50,000*l*., in 10*l*. shares; New Wheal Damsel; East Tywarthaile and Croft Prince (tin and copper), 6000 shares, 10s. paid; Great Tin Work, capital 25,000*l*., in 1*l*. shares; West Polbreen (tin), 2500 shares, 3*l*. paid; St. Stephen's Tin and Copper Mining Company; St. Blazey Consols (tin), capital 14,000, in shares of 2*l*. 10s.; Crowndale Consols (tin and copper), capital 25,000*l*., in 1*l*. shares; Polperro; Mid-Cornwall Mining Company, 120,000*l*.; Battishill (silver-lead), capital 15,000*l*., in 1*l*. shares; Bulkmore (iron), 50,000*l*., in 10*l*. shares; Menheniot (silver-lead), 12,500*l*., in 1*l*. shares; Wodithiel (silver-lead). Terras has also been rescued from the Stannary Court, Drake Walls resuscitated in 6500 shares, and South Roskear started. All this indicates the essentially healthy character of Western mining enterprise, though for the time the conditions may have been rather adverse.

The three chief stoppages of the year are Great Wheal Busy, Rose, United, and Poldice. These are all due to one cause—relinquishment; and with respect to the two first-named, it cannot be said that they had at all a fair trial. On Great Wheal Busy 28,000*l*. was spent and the bottom of the mine had not been seen, when in consequence of relinquishments the whole affair came to grief, and it was eventually sold as a going concern to Mr. A. Lanyon for 7750*l*. The bulk of the machinery and materials is now dispersed. In Rose United the relinquishments rose as high as 3504 shares out of 10,000. Poldice had a better trial, but when the concern was abandoned by Sir F. M. Williams, M.P., who held the largest interest in it, its chances were at once rendered hopeless, and it too went, the plant fetching 12,000*l*. Pendarves United has likewise been unfortunate—the Tryphena portion of the sett fetched 2200*l*. Great Work has stopped; chiefly, it has been stated, in consequence of being unable to obtain a reduction in dues. Polhighy Moor, Tresavean, Tretharrup, and New Lovell have suspended for the time. Other mines that have definitively ceased operations are—Ballewidden, sold as a going concern to Mr. Lanyon for 6500*l*.; Chiverton Moor, which realised 4615*l*. from the same purchaser; Wheal Damsel, bought by Mr. F. W. Michell for 2000*l*.; Wheal Millett, Mellanear, Tresavean, South Tolgus, Copper Hill, Wheal Kitty (Lelant), Florence United, Great South Chiverton, Princess of Wales, Emily Henrietta, bought for East Seton for 2500*l*., by Capt. Pryor; Wheal Grambler and East Treleigh Wood, both bought by Capt. T. Tregay, one for 125*l*. and the other for 50*l*.; East Wheal Uny, bought by Messrs. Crawshaw, of Gloucester, for 2200*l*.; Polcrebo, sold to Messrs. Harvey for 605*l*.; Wheal Damsel, bought by Captain Gough for 1300*l*.; New Wheal Martha, 1250*l*.; Craddock Moor, bought by Mr. Lanyon for 1440*l*.; Belowda Beacon, Bosworthen, and Penzance, Carsize, West Drake Walls, New Wheal Damsel, Wheal Friendship, Okel Tor; Wheal Lucy, sold to Mr. Lanyon for 810*l*.; St. Breward Consols. There are several mines in this list that will yet do well. Some of the chief hits in mining have been made by re-working abandoned setts, in which the new adventurers have found much of the heavy preliminary work done to their hands. We cannot quote a better instance of this class of mine than the famous Devon Great Consols, the shares in which rose from 1*l*. to 800*l*., consequent upon the discovery of a body of ore, which the former workers had been within a dozen feet of.

There has not been such an accumulation of mining machinery and requisites as might be imagined consequent upon these sales. A great deal has gone out of the county, and no inconsiderable portion has been sent abroad.

The limited liability principle is rapidly growing in favour with mining speculators. Nor is this to be wondered at. Theoretically perfect and equitable as the Cost-book System is, it is not in many ways so well adapted for the security of that outside capital in which Cornwall is now mainly dependent. It gives rise in too many cases to a looseness of accounts, which in the end may lead to undue depreciation. Greater certainty and a more defined risk attend the operations of limited liability concerns, and as time goes on they must extend. Among the mines that have placed themselves under the Companies Acts during the year are Boscaswell Downs, Carleen Vor, Parbola, Balmynhear, Excelsior, Tamar Valley, Hingston Down, Wheal Mary, Penhale St. Breock, Perran Consols, and Wheal Vincent.

There have been great fluctuations in the course of the Mining Share Market during the year, but investors must bear in mind that these ups and downs by no means represent corresponding changes in the value of the mines themselves—that is not necessarily. Working expenses remaining pretty much the same, and the quantity of metal raised in our established mines being tolerably constant. A change in the value of the metals must produce an immediate effect on the dividends; and then as most people mistakenly calculate the value of a mining investment upon the basis of present dividends alone, prices at once fall. There would not be so many of these fluctuations if the meetings were held and dividends declared at less frequent intervals. This will probably in the end be the result of the introduction of the Limited Liability Principle into the county. In the meantime holders of mining property should be wary. They should look beyond present dividends to the permanent character of the mine itself, and they should not be worked upon by the exaggerated statements to which the occurrence of such natural casualties as an accident to the machinery of a mine, or the temporary falling in of an adit are sure to give rise.

We now return to the statement with which we started—that the

depression of 1873 is but temporary, and that it is directly traceable to two main causes—the fall in the standard for tin and the rise in the price of coals and materials. It is not probable that any disturbing causes other than these—which everyone can see—are of a temporary character—are likely to arise within the experience of the present generation. For untold ages Cornwall has been the chief source of the mineral wealth of the United Kingdom. We are, of course, referring here to metallic minerals, and one looks around in vain for any tokens of exhaustion. Scientific and practical men alike agree in this, that all that has been done in the county bears but a small proportion to that which may be done. Nor have the conditions of working at all reached a point which indicates that the limit of successful operation has been realised. Many of the Cornish mines are very deep; Dolcoath is some 350 fms.; Tincroft not far short, and the number which exceed 300 fms. is large. But there are mines on the Continent—in Bohemia for example—which are 100 fms. deeper, and are still worked at a profit. What can be done elsewhere can surely be done in Cornwall. There is every temptation to proceed. The lodes in such mines as Dolcoath and Tincroft continue with undiminished strength to the lowest levels. It is but a few weeks since a lode was cut near the bottom level of Dolcoath, worth 200l. per fathom. And even if the old mines might be considered exhausted, there is plenty of unexplored ground left which is known to be rich in minerals, and which it would take centuries to develop.

The history of mining in Cornwall has been one of continual progress; and that which was given up by one generation, because the means at its disposal were inadequate, has again and again become the chief source of the wealth of the next, possessed of better facilities and larger powers. It is no new thing to hear now that Cornish mining is on its last legs; but the wise investor will gain confidence when he learns how, often that cry has been raised in the past, and how, notwithstanding, the great successes of Cornish mining have been won: 150 years ago the adventurers in the Cornish tin and copper mines petitioned Parliament for relief from the duty on coal, on the ground that there were no new lodes to be discovered, and that the existing ones would not bear increased expense. Since then the profits of Cornish mining have been reckoned by millions: 60 years ago the tin mines were at a discount, and quite unregarded. Now they constitute the chief mineral wealth of the county. The mineral area at present worked, moreover, is by no means the whole that the county possesses. Mr. Warrington Smyth, F.R.S., who so well represents the mineral interests of the Duchy of Cornwall, has stated that there are vast numbers of mineral veins, only just known, but as yet unexplored, besides which there must be large numbers yet unknown. A typical instance of the manner in which the mineral wealth of the county has developed in unexpected directions is, as many of our readers know, supplied by Dolcoath and the other mines which have changed from copper to tin. Dolcoath has been worked for centuries, and for many years occupied the place which Devon Great Consols afterwards took at the head of the great copper mines. When the copper fell off the bulk of adventurers were for abandoning the concern, and the shares fell to a nominal value. Under the advice of the late Captain Charles Thomas the works were carried on, and until distanced by Tincroft, which itself passed through the same change, Dolcoath became the richest tin mine in the world. It is believed that Devon Great Consols is now passing through the same change. All the indications are in that direction.

These are facts well known in the county, and many more of a like sort might be added, but it is well they should be known elsewhere. The great bane of mining enterprise is want of confidence by the shareholders, and the more they recognise the fact that fluctuations are a part of the normal condition of Cornish mining, and hold on accordingly, the better for all parties will their investments succeed. We again repeat that the sole reason why Great Wheal Busy, and Carzise, and Pollice, and several of the other mines quoted above as having been stopped during the past year, did stop, was want of confidence. A number of shareholders lose confidence and relinquish their shares, by relinquishing they throw too heavy a burden upon those who remain in, and operations came to an end. The result could not be otherwise. The successful investor in mines is he who invests under good advice in some good progressive mines, and sticks to his investment. There may be failures, but they will be far more than counterbalanced by the successes.

An illustration of the wisdom of this course can readily be given. In 1866-67 it was said, as it has been so often said before, that there was an end of Cornish mining. Yet in 1872, 45 of the very mines that were then deemed hopelessly insolvent declared dividends amounting to 236,724l. And this brought the total returns from these individual mines up to 4,048,952, on a capital of 1,123,961l. No other mineral district of the United Kingdom has ever approached this. Those who were wise enough to buy when things looked black, five or six years ago, have realised in many cases fortunes. Those who are equally wise to take advantage of the present unnatural depression will likewise find their account in it.

Let us glance for a moment at what the conditions of mining in the immediate future are likely to be. The coal difficulty is one which the mining industry has had to encounter, in common with most other branches of our national occupations. It is a drawback which handicaps them all, therefore does not put mining in an exceptionally disadvantageous position. It is a drawback, moreover, which most of the leading authorities hold will, if it does not wholly disappear, at least be materially lightened. And even as it is, a great deal may be done in the way of economy. There are some directions in which Cornishmen are proverbially slow to move, and this is one of them. They have the best pumping-engines in the world, but they do not work them now as cheaply as they might. Here a little outside pressure will do good, and as Cornwall requires the aid of outside capital, those who find it have a right to require that it shall be expended as efficiently as possible.

Though iron has fallen, it is not likely that timber will go back materially. This is an article of prime importance in the Cornish mines, and now stands 50 per cent. above what it used to do—Norway having risen from 7d. to 10d. per foot, and Quebec from 1s. 5d. to 2s. 2d. If coals fall, however, the rise in the cost of materials is not by itself very serious.

It is, perhaps, more difficult to forecast the course of the tin standard than any other matter connected with mining. The copper standard is a much simpler affair; but the fact remains that even with standards at the present level there are scores of mines which would be paying dividends were it not for the unavoidable increase in the expenses. They are, as it were, just upon the verge of the balance, and a very little weight either way tells. There is a great deal about the importation of Australian tin that is uncertain; but it is clear at least, whether rightly so or not, that the fall in the tin standard is attributable to its influence. It is believed now that the quantity is falling off. So long as the Australian tin is raised in the stream workings so long will it remain a competition more or less formidable to the tin raised at home, simply on account of the less relative cost of its production; but directly it comes to be obtained by mining proper it will be too heavily weighted to be a very dangerous antagonist. It should be remembered, too, that the production of Banca tin is on the decline, and that we can afford to have a little Australian thrown into the scale as a makeweight. On the whole, therefore, we see no reason to anticipate more untoward results from the influx of Australian tin than have followed from the discovery of the Banca deposits. More than half a century ago Sir Stamford Raffles, then newly returned from the East, visited Cornwall, and said to one who was then a boy, but is now one of the leading men of business in the county, Mr. T. S. Bolitho, that unless the tin-dressing operations were improved he would live to see the end of tin mining in Cornwall. Tin-dressing operations have been improved, and tin mining is as far from extinct as ever it was. Still, however, they are far from perfect. What is so well known as the Red River, which carries to the sea the water of the mines between Camborne and Redruth, carrying with it each year 80,000l. worth of tin? 40,000l. worth annually are saved by workers on the stream, and we estimate that at least an equal quantity goes to the sea. Were this amount divided among the mines that raise it, as with improved dressing operations it will be, it would operate as a power-

ful counterbalance to drops in standards and rises in coals. These are certain gains.

There is an element of possible gain in the movement to start a smelting company connected with the mines, in order to break down the monopoly which the tin smelters now enjoy, and which enables them to regulate the prices according to their own desires, without consideration for the interest of the mines. Nor should we overlook the advantages conferred upon the mines by the more liberal treatment of several of the landowners, who have recognised the justice of a reduction of dues.

This is a subject which has occupied a good deal of attention in the county during the past twelve months, and which by Lord Roberts, Mr. Basset, Mr. Buller, Sir R. Vivian, Mr. Pendarves, and some other lords, has been met in a very practical and satisfactory manner. The Duchy of Cornwall has likewise adopted a similar course.

The observations made with regard to coals apply chiefly to the older and deeper mines. There are, however, not a few that may practically be considered free from the coal drawback. At least, their consumption of coals is so small that they are very slightly hampered by it. There are several young mines scattered throughout the county which, to all appearance are just entering upon profitable working, and which for a long time to come may be worked at a very small expense. Not a few of the concerns which were started during the *fièvre* of 1872 are now turning out their 2 or 3 up to even 10 or 20 tons of tin a month. It is in this way that the falling off in the produce of the county, which would otherwise have arisen, has been so nearly made up. These are illustrations of what we have already said—that Cornwall yet possesses mineral areas which for all practical purposes may be deemed virgin. The famous Fowey Consols Mine yielded a profit of nearly 1,000,000l. from the copper lodes. Within the present year it has been found to possess several well-defined tin lodes untouched. And with regard to copper, since large deposits are frequently found within a very short distance of the surface, it is clear that promising ground may be satisfactorily explored at a very small expense. The immense wealth which made Devon Great Consols so famous—a wealth so great that, as we have said, the 1l. shares once sold for 800l., was reached by sinking a shallow shaft that had been abandoned 3 fms. further. And the discovery and development of the whole wealth of the Caradon Hills was at one time dependent on the stroke of a pick. A level in what is now South Caradon Mine had been driven in the face of the hill, and it was about to be given up when one of the workmen made up his mind he would try another five minutes, and laid open the lode. The experience gained of late years, and the improvements in mechanism and working, particularly the introduction of portable engines, enable explorations to be carried on much more cheaply than in former years.

Our final conclusion, therefore, is—and it is one for which we have shown ample reason, and might indicate yet more—that however 1873 may have fallen short of 1872, Cornwall, especially under present conditions, presents as good a field to the speculator and the investor as ever, and that they are utterly mistaken who fancy that all the prizes have been won. Cornwall has long since passed the time when she was able to find means to develop her own riches. The aid of outside capital is now of prime necessity, and the prudent investor who familiarises himself with the conditions of Cornish mining, and turns them to his own advantage, as with so fluctuating and yet, in the main, so certain a property he readily may, has good grounds for anticipating that his enterprise will be rewarded.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Dec. 24.—The festivities of Christmas will cause a virtual cessation of business in the trade of this district during the next fortnight. It is very improbable that any orders of importance will be given out before the quarterly meeting of the iron trade in Birmingham, the advent of which will be awaited with interest, although it is very doubtful whether it will bring any change in quotations, or in the general aspect of the trade. The settlement of the wages question, although it is in the nature of a compromise, is on both sides regarded with satisfaction. For the next three months the rate is to be on the basis of 12s. 4d. per ton for puddling, and at the end of the time a self-adjusting scale will be applied for the permanent regulation of the wages in accordance with the selling price of iron, the rate never being under 9s. 6d., or over 12s. 6d. per ton for puddling. The slight difference in favour of the masters in the cost of labour, as compared with its present rate is unlikely to have any appreciable effect upon prices. As the business year closes the ironmasters' order books are very scantily filled, but the prospects of trade in the new quarter are, on the whole, not discouraging. Stocks are known to be small alike in the home and the principal foreign markets, and iron must be had in large quantities for the requirements of the spring, notwithstanding the adverse quotations. The advice just to hand from the United States encourages the hope of a speedy recovery of the market from the effects of the recent commercial disasters. The course of quotations for finished iron remains on the basis of 14l. per ton for marked bars, but in the open market bars of very fair quality have for some weeks past been obtainable at 13l.; and common ditto at 12l. per ton. Rivet iron is 13l. to 15l.; nail rods, 12l. 10s. to 14l.; slit rods, 14l. to 16l.; sheets (singles) ordinary 14l. to 15l.; with 30s. extra for doubles, and 60s. for lattins. Wilden sheets B. are 20l.; B.B., 21l.; and B.B.B., 22l. 10s. per ton. Galvanised roofing sheets show a tendency to increased firmness, the underselling lately complained of having been checked by the disastrous results with which the practice has been attended in the case of one of the local firms. The pig-iron makers quote all-mine, hot-air pigs, 7l. 5s.; part mine, 6l. to 6l. 5s.; and cinder, 4l. 15s. to 5l. per ton. Charcoal and cold blast pig are steady at about late rates. North Country pigs of hematite and other high class makes are offering in this district at 5s. to 10s. per ton below the quotations ruling at the commencement of the present quarter.

The South Staffordshire coal trade is on the whole firmer than recently reported, the reduced output of the collieries during the last few weeks having fully compensated for the restricted consumption at the ironworks of the district. Generally it is thought that the price of coal will not undergo any reduction until April or May, by which time a considerable number of new collieries will be ready for operation.

Shares in local coal and iron companies are quoted as follows on the Birmingham Stock Exchange:—Sandwell Park Colliery (100 paid) 250; Cannock and Huntington Colliery Company, 24; Cannock and Wimblebury Colliery Company, 1½ to 2 prem.; Pelsall Coal and Iron Company, 1½ prem.; Chillington Iron, 7½ sellers; Bagnall and Sons, 9½ sellers; Patent Shaft and Axle Company, 8½ prem.; and Patent Nut and Bolt Company, 2 prem. buyers.

The North Staffordshire Iron Trade is dull as usual at this season of the year. There is no change in prices since our last report, and the trade generally is without new feature. Here, as in the south part of the county, an improvement in the demand is expected after the holidays.

The Lilleshall Company and other leading Shropshire firms have advanced the price of coal 2s. 6d. per ton to cover the loss they would otherwise have sustained by the concession recently made to the miners in the district in regard to the hours of labour.

A meeting of the Sandwell Park Colliery Company was held at the colliery, on Tuesday, to confirm the resolution passed at a special meeting, authorising the increase of the capital from 20,000l. to 30,000l., by the creation of 200 additional shares of 50l. each. The following directors were present—Messrs. P. D. Bennett (Chairman), J. Bisset, S. York, J. Fellows, Thomas Checkley, J. Field, and J. Cooksey. There was also a good attendance of shareholders. At the conclusion of the meeting the shareholders had an opportunity of inspecting the works, which are being carried on in a most admirable manner. The present depth of the shaft is 324 yards, and the bottom is still in the purple marl and blue pebbly rock. Last week 7 yards of sinking was done and bricked. The bottom of the shaft is perfectly free from water, and it is confidently expected that the old capital still in hand, amounting to about 900l., will be sufficient to complete the search for the thick coal. The shares of the company are rising rapidly, the last transaction being at 110l. premium on 100l. paid up. After inspecting the works, the shareholders sat down to luncheon. The Chairman proposed the toast of "Success to the Sandwell Park Colliery Company," assuring the shareholders that the directors were doing everything to press forward the works, and that he hoped soon to be able to announce that they had arrived at a successful issue. The toast was heartily drunk. Mr. Culwick proposed the health of the Chairman and directors, stating that he never witnessed greater economy in carry-

ing on any public concern than that exercised by their directors. He thought the majority of the shareholders would appreciate the manner in which the work was being conducted, and would join with him in the hope that very speedily they would be able to announce that coal had been found. The Chairman, having responded, Mr. Bisset proposed the health of the mining engineer (Mr. Johnson), alluding to the admirable manner in which the work had hitherto been carried out. Mr. Henry Johnson, in responding, informed the shareholders that during last week 7 yards was sunk 10 feet in diameter. His subordinates and the sinkers had gone on with their work in the most hearty manner. Mr. Henry Johnson, jun., then exhibited to those present some experiments to show the effect of dynamite in blasting rock. A single cartridge was first placed upon a huge block of close-grained sandstone rock, and upon it being fired it was shattered to fragments. Two pieces of similar material were then placed one upon another, with a cartridge between them. These were also disintegrated in the same way as the last piece. Pieces of wrought and cast iron were also subjected to a similar process, with the same results, showing the immense power of dynamite. The material has been employed with great advantage in making the present sinking.

The coming year will witness in Staffordshire the opening out of a large number of new and important colliery undertakings, as well as the settlement of experimental sinkings and borings, the results of which can hardly be over-estimated. Among the new workings which will within the next 12 months be adding their quota to the aggregate output may be mentioned:—The Bentley Colliery, the Cannock and Wimblebury Colliery, the Hawne Collieries, the (new) Cannock and Rugeley Colliery, and additional shafts on the estates of Messrs. Jno. Bagnall and Sons (Limited) near Walsall. The experimental searches for coal of the greatest importance are the trial shaft at Sandwell Park, the trial boring at Huntington, and the trial sinking at Fair Oak, each of which will certainly have been conclusively settled within the year, and most probably at an early period of it. What effect so large an actual and prospective increase in the fuel supply will have upon the industries of the district remains to be seen.

The Stipendiary of South Staffordshire has fined Mr. T. Latham, certificated manager of the Denbigh Hall Colliery, Dudley Port, 5l. and costs (so as to give power to appeal), at the same time expressing the opinion that he had shown an inclination to take all obvious precautions for violation of the first general rule. For the prosecution, Mr. J. P. Baker, Government Inspector, it was contended that the gas had accumulated under a catch scaffold, whilst for the defence it was urged that one of the deceased had tied up or tilted the canvas air-tight, as he had previously threatened to do, because the air was too strong to please him. The other summonses for neglect of rules 2 and 7 were withdrawn.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Dec. 24.—Mining in Derbyshire cannot be characterised as in any way active, although there is a great difference as regards the production of lead and coal, as well as in the wages paid to the work-people. For some years past the lead mines have not materially increased, nor has the quantity of ore; still, the business done has been really safe, and the losses by no means large. Speculation, indeed, has been on a very small scale, and nothing to compare with the large sums subscribed for carrying on abandoned mines in North Wales, where the baits are far more tempting, but in many instances a great deal more delusive, than anything attempted in Derbyshire. In fact the county seems to have none of those active and enterprising gentlemen known in the northern part of the Principality as "captains," and on whose reports capitalists are allured into investing, and only to "find too late that reports betray." Mines in Derbyshire, it may be said, are worked with comparatively small capital, and in some instances with little or none. Such men as the Messrs. Wass, men of energy and business habits, with capital and experience, make headway, and evince no disposition to throw their mines into limited companies. Some of the companies, however, have been got up and carried out by Sheffield tradesmen, and have done very well, for they are well looked after, and the necessary expenditure duly weighed and considered. But there is very little doubt there is still a large and profitable field for investment in lead mining, but principally in localities where, as yet, the civilising propeller and the locomotive engine is as yet a complete stranger. Several attempts have been made to give railway facilities to such places as Eyham, Hathersage, Castleton, Great Hucklow, &c., but as yet without success. There is every reason, however, to believe that the time is not far distant when the railway will penetrate more districts, and open out a trade which is now altogether closed, not only in lead, but also in limestone, of which there is an abundance. Communication between the coal and lead mining districts would tend to the advantage of both, and cannot be much longer delayed. The coal trade has been tolerably good during the first half of the week, and I expect the remainder will be no less, for it is not likely that any work will be done on Friday and Saturday, after justice has been done to Christmas Day. A rather larger tonnage has been forwarded to London during the last few days in anticipation of the holidays. There is, therefore, plenty of coal at the stations and depots of the principal lines in the metropolis, and, as a consequence, prices have been inclined to give way more than otherwise, although they are now only 1s. per ton higher than in November last, when the lowest point of the year was reached.

A very fair business is being done in gas and other coal to Birmingham and the West of England, and in furnace coal and coke with Northamptonshire. During the past and the present week the miners in different districts, including Chesterfield, Staveley, &c., have been invited to lectures given by Mr. Lloyd Jones, of London, on the benefits of Trades Unions. Whatever advantages the miners may derive from belonging to a Union, there is no mistaking the fact that such Unions are of great benefit to Mr. Jones, who, of course, is a paid agitator, and lives best when discussions arise between employers and employed, when his services are always available for the usual solution. Why Staveley should have been fixed upon we are unable to say, seeing that Mr. Markham has successfully opposed unionism so far as his men are concerned.

"Bull-week" in Sheffield was rather better than was expected, and there was considerable activity in a few branches, but nothing like what it was during the past two years. The falling off in the foreign trade and the high price of fuel have combined to cause a great many workmen to have been only partially employed for some time past. The mills continue to be well employed, but there is not such a brisk demand for railway material. Some branches of the cutlery trade are favourably off for orders, more especially the smaller qualities of table and spring knives. A steady trade continues to be done in Bessemer rails, but there is very little doing at the Atlas Works, where the mill men are now locked out, having refused to submit to a reduction of 10 per cent. They are likely to be well supported, seeing that the men at the other works know that if the men of Messrs. Brown and Co. accept the reduction all the others will have to do so likewise. The collieries in South Yorkshire have been doing very well during the first three days of the week, although at several places short time was the rule during the greater part of the last month. Messrs. Newton Chambers and Co. have been doing a very fair business in Silkestone and other coal, and the firm, having intimate connections with Sheffield, have forwarded 200 tons of coal to the poor inhabitants of the town—an act most seasonable, and will doubtless be duly appreciated. Donations of a similar character from other colliery owners would at the present time be a graceful recognition of the wealth which the public has showered upon them during the recent year. A good deal of furnace coal and coke is being sent into Lancashire, and engine fuel into different parts of Lancashire.

REPORT FROM SCOTLAND.

Dec. 23.—The warrant market continued steady all last week, the closing price on Friday being 106s. 6d. This week there has been a good deal of business done betwixt 106s. 6d. and 107l. 6d., closing this afternoon with sellers at 107s. 3d. There is little change to notice in the value of makers' iron, and as the price of warrants is now rather higher in proportion, a small quantity is being sent into store.

	No. 1.	No. 2.
G. M. B., at Glasgow (deliverable alongside).....	108s. 0d.	108s. 0d.
Gartsherrie ditto ditto.....	114 0	108 6
Coltness ditto ditto.....	116 0	108 6
Summerlee ditto ditto.....	110 0	106 6
Carnbroe ditto ditto.....	110 0	106 6
Monkland ditto ditto.....	108 0	106 6
Clyde ditto ditto.....	108 0	106 6
Govan, at Broomfield ditto.....	108 0	106 6
Langloan, at Glasgow ditto.....	112 6	106 6
Caldar, at Port Dundas, ditto.....	113 6	106 6
Glenarnock, at Ardrossan ditto.....	110 6	106 6
Eglington ditto ditto.....	107 6	106 0
Dalmellington ditto ditto.....	108 6	106 0
Carron, at Grangemouth, selected, ditto.....	112 6	—
Shotts, at Leith ditto.....	112 6	107 6
Kinnell, at Boness ditto.....	107 6	104 0
Bar iron.....	213 0	—
Nail rods.....	13 0	—

Week ending Dec. 21, 1873Tons 11,486
Week ending Dec. 20, 18739,156

Decrease2,330
Total decrease since Dec. 25, 1872229,422
Imports of Middlesbrough pig-iron into Grangemouth:—
Week ending Dec. 20, 1873Tons 4,354
Week ending Dec. 21, 1873750

Increase3,604
Total increase for 187331,159

The limited supply of iron ore from other countries is affording a fair opportunity for the development of native hematites, which are proving nearly equal to the demand. The production of pig-iron for the year just closing will be found to have decreased something like 250,000 tons, with quotations which have not been exceeded since the introduction of the hot-blast into Scotland. Of this we will give the figures more definitely next week.

Malleable Iron is still meeting with only a limited enquiry, and there is, consequently, not much life in the market. A dying year is in strict consonance with a lifeless market; but a few days may change the whole aspect of things. Machinists are very busy, and heavy shipments are weekly leaving the Clyde. Some one of the

good orders for pipes have also been placed. Ship iron is in fair demand, but a good many vessels are leaving the stocks at our shipyards. Prices are easy, and orders can be booked under the list price. Brass and copper workers are fully employed at remunerative work.

We have heavy shipments of coal from the Forth ports, efforts being made to get as much off as possible before the German and other Norse ports are closed by the ice. During the week 33,641 tons were sent seaward, against 13,495 tons in the same week of last year.

A number of new collieries are being opened up in Fife, Lanark, Renfrew, and Ayrshires.

Mr. Smith, the agent for the Motherwell district, has received a purse of 20 sovereigns from the colliers in his district. The directors of Merry and Cunningham (Limited) have declared an interim dividend at the rate of 10 per cent. per annum for the half-year to Dec. 31, being 6d. per share to account of dividend for the year ending June 30 next.

THE OMOA IRON AND COAL COMPANY.—The action which was lately raised in the Court of Session against the promoters of the Omoa and Cleland Iron and Coal Company, by Mr. George Simpson, mining engineer, Glasgow, has been compromised. It was in a great measure due to the circumstance of Mr. Simpson having a most intimate knowledge of the Omoa and Cleland coal fields, and embodying very special information regarding them in his report, that the company was so successfully floated, and now pays a dividend of 20 per cent. Naturally enough, Mr. Simpson, not having received what he deemed a suitable professional fee for his services, raised an action concluding for such a fee in the Court of Session. Very soon after the record in the case was closed a compromise—a fee of 100l., and payment of all expenses—was accepted by the pursuer.

At a meeting of the Fairfield Association, Mr. C. Houston read a paper "On Link Motion," in which, after describing the various arrangements now in use, and their advantages or defects, he showed, by the aid of drawings and diagrams, the superiority of the "double-plate" link, most common in marine engines over any other, and drew the attention of engineers to the proper designing of motions, so as to give the least amount of "black-ship," thus saving a great deal of wear and tear. A lengthy discussion followed, and, on the motion of the Chairman, the lecturer received a hearty vote of thanks.

DEPOSIT OF MAGNETIC IRONSTONE IN THE ISLAND OF BUTE.—At the Royal Physical Society of Edinburgh Dr. James Middleton brought under the notice of the members a somewhat remarkable deposit of black sand, found on the shores of the island of Bute, at Bogony Point, at the entrance to Rothesay Bay. On being carefully examined it was found to consist of almost pure magnetic oxide of iron. Dr. Middleton said that it occurs in considerable quantities at the place named, and that it would be difficult to estimate the quantity, but he also said that there could be no doubt that its removal and application to industrial purposes would be profitable. He had been told that the substance was of high value as an adulterant of emery, and he believed that it could be so easily worked that it would certainly pay. Bogony Point, although the principal locality, is not the only part of Bute where the magnetic sand has been found, as it occurs at Kilmichael, in the Kyles of Bute. It was mentioned by Dr. Middleton, as an interesting circumstance probably connected with this deposit that captains of small coasting vessels in the neighbourhood alleged that they had noticed a divergence of the compass to the point where the principal deposit is. It was stated by different members that the same ore might be detected on various parts of the British coast. Surgeon-Major Black exhibited a specimen of black magnetic sand from Milo, one of the islands in the Mediterranean.

REPORT FROM MONMOUTH AND SOUTH WALES.

Dec. 24.—During the past week the Tredegar Iron Company has dispatched 754 tons rail to Smyrna; the Preserved Coal Company 200 tons to Demarras; and the Dowlais Company 815 tons to Pillan. These figures show the exports to be unusually small, and that they have been gradually decreasing as the year drew to a close. There will be but little more done this year. The Christmas holidays having commenced the iron and coal works are pretty well all deserted, and the year, so far as iron making is concerned, is now virtually at an end. From an iron trade point of view the year now closing has been a most unsatisfactory one. Although an improved state of things was looked for from time to time, business has continued sluggish throughout the year, and things for the last month have been about as bad as they could well be, and it is to be hoped that now they are at the worst they will soon mend. There is nothing left now but to patiently await the opening of the new year, and see whether the expectations lately formed will be realised. It is to be feared that there will still be some difficulty in regard to prices. There is some satisfaction in seeing that with the end of the year has come an improved state of things in the Tin Plate Trade, and that there is a probability of a period of activity. If the demand continues to increase there is little doubt that prices will be gradually advanced.

In regard to the iron and tin-plate trades, it may be mentioned that the great cause of the depression which has been experienced during 1873 was the withdrawal of American purchases. The rail trade in particular has suffered greatly owing to the dulness on American account. Partly through the high prices and partly through the exertions of American makers, American purchasers withdrew almost altogether from this market, and if Russia had not become a larger customer the rail trade of South Wales would have fallen to a very low pitch. It must be admitted, too, that prospects so far as American business is concerned are by no means encouraging.

The Coal Trade must be set down as having been the most prosperous of all the industries of the district during the year, and it is not unlikely to maintain that position in the new year. Hitherto the exports of steam coals have been on a large scale to all the leading foreign markets, and as soon as the Christmas holidays are over business will again be as active as ever. There is every prospect of a continued brisk demand, and that prices will remain firm. Similar remarks are applicable to the house coal trade.

An important meeting of the Monmouth and South Wales Collieries Association has just been held at Cardiff, Mr. Fothergill, M.P., presiding. A number of questions were brought under consideration, but the main object of the meeting appeared to be to fix the association so that it might not be dissolved at any time except by the clearly expressed desire of a large majority of the members. The management of the affairs of the association will remain in the hands of the provisional committee until March next, when a council will be elected. The committee consists of 25 gentlemen, of whom the majority are ironmasters, but who are also extensive colliery proprietors. One of the conditions of the association is that no member shall have the right to advance the wages of the men without first obtaining the consent of the council. Payment to a member who suffers loss by a strike will be made forthwith. It is understood that the masters who have thus combined do not intend enforcing the obnoxious discharge-note system, only in time of strikes. There are now, therefore, two enormous combined powers in the district, and unless wisely and cautiously wielded at all times they may at any time prove most disastrous to the district. These powers are combined capital and combined labour. The masters assert that their combination is entirely in self-defence, and that they have no intention of bringing undue pressure to bear on labour.

The steadily-increasing prosperity of the coal trade during the year has caused a good deal of enterprise in the district, and several new collieries have been started. A number of instances have been recorded, also, where new seams of coal have been won, and where sinkings have been commenced. Among the principal coal companies started during the year have been the Newport Abercarn, the Black Vein Steam Coal Company (Limited), the Cardiff and Swansea Smokeless Steam Coal Company (Limited), and the Bryncae and Cadley Collieries Company (Limited).

There has been a large increase in the manufacture of steel during 1873, and makers have carried on a profitable business. One of the leading establishments in this branch is the Llandoferri (Siemens) Patent Works. These works have been largely employed until within the last month, when a dispute arose between the engineers and the proprietors, and a strike ensued. Matters were, however, soon settled, and the works set going again.

The sale of the Cyfarthfa Works to a company has been reported from time to time, but the report has been found just as often to be not strictly correct, and now it is again stated that the purchase has not been completed. Those dependent upon the works, there ore, entertain the hope that the works will not, after all, pass from the hands of the Crawshays, with whose names they have been so long associated.

An adjourned meeting of the Welsh Ironworks Company has been held in London, the Earl of Devon in the chair. The balance-sheet was presented, but as there was not a quorum it could not be received, and a shareholder, in remarking upon it, asked what the Llandoferri Patent Works Company paid to this company. It was set down as 35000l., and in a report which he had received it said 40000l. for the first year, and 24000l. afterwards. The reply to this question was that the Llandoferri Patent Works Company paid 35000l. to the Welsh Ironworks Company, and they pay 10000l. to the head landlord for the property.

THE NANT-Y-GLO AND BLAINA IRONWORKS COMPANY.—The following gentlemen have been selected by the Manchester committee to be the new directors of the Nant-y-glo and Blaina Ironworks Company (Limited):—Mr. Richard Shaw, M.P., Mr. Hugh Mason, Mr. Isaacson, Mr. Ogden, and Mr. Jenks.

LETT'S DIARIES.—For many years past the almost innumerable editions, for they vary in size from the miniature almanac which can be carried in a gentleman's card case to the handsome folio volume, of Lett's Diaries have received extensive patronage from all classes; and the samples of the editions for the coming year, which we have just received, suffice to show that the character and quality of the books are well maintained, and that they, as usual, contain all the information likely to be required in a diary. They appear to be at once cheap and useful.

In Chancery.

IN THE MATTER OF THE COMPANIES ACTS, 1862 and 1867;

AND IN THE MATTER OF THE

CASTELL CARN DOCHAN GOLD MINING COMPANY (LIMITED).

THE CREDITORS OF THE ABOVE-NAMED COMPANY are required on or before the 24th day of January, 1874, to SEND THEIR NAMES AND ADDRESSES, and the PARTICULARS OF THEIR SEVERAL CLAIMS, and the names and addresses of their Solicitors (if any) to JAMES FORD, of No. 75, Chancery, in the City of London, Public Accountant, the Official Liquidator of the said company, and, if so required by notice in writing from the said Official Liquidator, are by their Solicitor to COME IN AND PROVE THEIR SAID DEBTS OR CLAIMS at the Chambers of the Vice-Chancellor, Sir Charles Hall, at No. 12, Old Square, Lincoln's Inn, in the county of Middlesex, at such time as shall be specified in such notice, or in default thereof they will be EXCLUDED FROM THE BENEFIT of any DISTRIBUTION made before such DEBTS are PROVED.

Monday, the 9th day of February, 1874, at One o'clock in the afternoon, at the said chambers, is appointed for hearing and adjudicating upon the debts and claims.

ALFRED HALL, Chief Clerk.

JOHN TUCKER, 28, St. Swinith's-lane, London

(Solicitor for the said Official Liquidator).

Dated this 18th day of December, 1873.

SOUTH STAFFORDSHIRE.

IMPORTANT SALE OF A VALUABLE MINING ESTATE, known as

TIPTON GREEN COLLIERY,

TIPTON, including a surface area of about 70 acres, and a mining area of nearly 100 acres, with the UNGOITEN MINES OF COAL, IRONSTONE, FIRE-CLAY, and LIMESTONE thereunder, and the valuable fixed COLLIERY PLANT, PUMPING and WINDING ENGINES, and MACHINERY; also a

LICENSED INN,

Known as "The Albion," and numerous COTTAGES and OTHER BUILDINGS erected upon the property.

MESSRS. CHESHIRE AND GIBSON have received instructions from the Trustees of the will of the late CHARLES ROBERTS, Esq., TO SELL, BY AUCTION (unless previously disposed of by Private Contract, of which due notice will be given), on Thursday, the 22nd day of January next, at the Exchange Rooms, Stephenson place, New-street, Birmingham, at Three o'clock in the afternoon for Four o'clock to the minute, in One Lot, the above-mentioned VALUABLE COLLIERY, intersected by railways and canals; also VALUABLE BUILDING PROPERTIES, BUILDING and WHARF LAND, together with the WHOLE OF THE VALUABLE MACHINERY and PLANT belonging to the vendors, comprising—

THIRTEEN STEAM ENGINES of the combined power of 420 horse, with their winding gear; NINETEEN BOILERS, pit frames, pulleys and guides, rollers and posts, pit chains, ropes, and other plant; also a LICENSED PUBLIC HOUSE, known as "The Albion Inn," numerous COTTAGES, WAREHOUSES, stabling, and other BUILDINGS and LAND, producing a gross rental of £535 10s. 4d. per annum, exclusive of the important income derivable from royalties, to which it may be added a very considerable increase will be made as soon as the Mines Drainage Act comes into full operation.

The Tipton Green Colliery is well situated for the transit of its minerals to all parts of the kingdom. It is intersected by the London and North-Western Railway (the Tipton Station of that railway being within its boundaries) by the upper and middle levels of the Birmingham Canal, and by the Walsall Canal, and there are several basins on the property connected with the said canals.

Plans and particulars may be obtained from Mr. JOHN HARVEY, the agent, at the Tipton Green Colliery offices, Tipton, who will show the property; from S. SPOFFORTH, Esq., Solicitor, 31a, Great George-street, Westminster; Messrs. HANWALD, SHEPHERD, and HARWARD, Solicitors, Stourbridge; Mr. E. SMALLMAN, Mine Agent, King's Hill, Wednesbury; and from the Auctioneers—

MESSRS. CHESHIRE AND GIBSON, 93, New-street, Birmingham.

IN THE MATTER OF THE COMPANIES ACTS, 1862 AND 1867;

AND OF THE

CARN GALVER TIN MINING COMPANY (LIMITED).

TO BE SOLD, BY PUBLIC AUCTION (subject to conditions which will be then and there produced), on Friday, the 2nd day of January, 1874, at Two o'clock in the afternoon, at the Account-house of the Carn Galver Tin Mining Company (Limited), situated in the parish of Zenon, in the county of Cornwall, in One Lot, the SETTS or GRANTS under which the operations of the company have been, and are still, being carried on; together with the

MACHINERY AND MATERIALS

On the said mine, comprising—
A 30 in. cylinder PUMPING ENGINE, with 10 tons BOILER; a 22 in. cylinder WINDING ENGINE, with 7 tons BOILER, cage, &c., complete; a 17 in. cylinder high pressure COMPOUND ENGINE, with 10 tons BOILER, and two heads of Husband's patent pneumatic stamps; pitwork; wood rods; rod plates; balance and angle bolts; smiths' tools; iron of various kinds; wire rope; tram wagons; all the appliances of the dressing-floors; and a great variety of other articles in general use in mines.

Further particulars may be ascertained from Capt. JOHN ROACH, at the Mine; or from the undersigned—

THOMAS W. FIELD

(Liquidator of the said Carn Galver Tin Mining Company, Limited).

Marazion, 19th December, 1873.

TO BE SOLD, BY PRIVATE CONTRACT, as a going concern, under the Statutes Act, 1869, the WHOLE OF THE

BELL TIN MINE,

In the parish of GWENNAP, CORNWALL, including the MACHINERY, MATERIALS, and SET.

The mine is well known as one of the most promising progressive mines in the county, and may be viewed on application to the agent, on the mine, between the 8th and 15th January next.

Tenders, stating the highest price that will be given, may be sent to the Purser, Mr. R. J. CUNNACK, Helston, on or before the 15th January next.

TAVISTOCK, DEVON.

IMPORTANT SALE.

THE LIQUIDATORS OF THE WHEEL FRIENDSHIP MINING COMPANY (LIMITED) OFFER FOR SALE, BY PUBLIC TENDER, all the INTEREST of that company in the MINING SETTS (recently expired), comprising

THE WHEEL FRIENDSHIP MINE,

In the parish of MARY TAVY, TAVISTOCK, in the county of DEVON, and all BENEFIT of a PROMISED RENEWAL thereof, together with all the valuable and extensive MACHINERY, PLANT, and MATERIALS thereon, comprising several large WATER-WHEELS, and an immense quantity of pumps and other pitwork, dressing apparatus, &c.; and also a very large accumulation of halvans, containing ores of copper, arsenic, tin, &c.

All tenders must be lodged with Messrs. JOHN TAYLOR and SONS, No. 6, Queen-street-place, in the City of London, on or before the 1st of January, 1874.

Particulars and conditions and forms of tender may be had of Messrs. JOHN TAYLOR and SONS, 6, Queen-street-place, London; or of Mr. MICHAEL MORCOM, at the Mine, Tavistock; of J. KELLY, Esq., Solicitor, Plymouth; and of A. PULBROOK, Esq., Solicitor, 28, Threadneedle-street, London.

TO COAL MASTERS, COLLIERY PROPRIETORS, AND

OTHERS.

TO BE OFFERED FOR SALE, BY PUBLIC AUCTION (unless previously disposed of by private contract), in the early part of the ensuing year, the MINES OF COAL, and other MINES and MINERALS, lying within and under a compact ESTATE, situated at IBSTOCK, in the county of LEICESTER, containing about 184 acres, and lying at a short distance from the Ibstock Colliery. Powers of entry on a suitable portion of the surface of the estate, and other necessary rights of way for the development of the mines, will be granted therewith. Further particulars will be published in due course, meanwhile any further information can be obtained on application to Mr. RICHARD THIRLLY, Mr. JOSEPH CLARKE, and Mr. BENJAMIN THIRLLY, all of Ibstock; and Mr. JOSEPH SHERWILL, of Burton-upon-Trent; Messrs. SMITH and MAMMATT, or to Messrs. E. and T. FISHER, Solicitors, Ashby-de-la-Zouch.

INVITING TO CAPITALISTS.

TO BE SOLD, IN DERBYSHIRE, a good going COLLIERY, now about 350 tons weekly. The output can be increased double or treble as soon as connection, established in about two months, with branch of Midland Railway. Price £20,000.

TO BE SOLD, AN EXTENSIVE COLLIERY ROYALTY, about 600 acres, near BARNSELY. Upwards of 12 seams of coal untouched, including Silktone Main and Silktone Four Feet. Price, £18,500 for the entire, or £4000 for one-third-latter preferred.

Either properties are certain fortunes.

Apply to Mr. WATSON, 16, Fenwick-street, Liverpool.

RARE OPPORTUNITY FOR MAKING A FORTUNE.

TO BE SOLD, PART OR ENTIRE (former preferred) of a COLLIERY ROYALTY IN NORTH WALES, bordering on the London and North-Western Railway, and close to a shipping port. There are several shafts partially sunk, some requiring to be sunk still deeper, but operations stopped for want of capital. There are four seams of good house and steam coal proved in an area upwards of 400 acres of surface. Holder will sell the entire, including the present plant (not sufficiently powerful for sinking further) for £4000, but would prefer taking a PARTNER, who would advance the necessary capital for half profits, which in the present state of the coal trade are almost fabulous.

Address, "Vulcan," care of Mr. Watson, 15, Fenwick-street, Liverpool.

VALUABLE BEDS OF COAL.

IMPORTANT TO COLLIERY OWNERS, COAL MERCHANTS, MANUFACTURERS, AND OTHERS.

TO BE LET, ON LEASE, THE LOW MOOR BLACK AND BETTER BEDS OF COAL, lying under about 40 acres of land, situate between BRADFORD and DEWSBURY, in the county of YORK. The coal has been proved by workings in surrounding properties. It is of a quality suitable for domestic and manufacturing purposes, is clear of water, adjoins a good public road, and is within half a mile of a railway station.

The outlay necessary in order to get the coal will be comparatively small, and the undertaking cannot prove otherwise than a profitable one.

Further particulars can be obtained on a personal application to Messrs. SMITH and GOTTHARDT, Bermondsey, Bradford.

TAYLOR, JEFFERY, AND LITTLE, Solicitors, Bradford.

TO INVESTORS.

TWO SPLENDID OPPORTUNITIES SUCH AS ARE SELDOM MET WITH—the one, a COTTON SPINNING CONCERN, ready for IMMEDIATE WORKING, and stocked with the most VALUABLE MACHINERY, principally new—the other, a LARGE IRONMONGERY BUSINESS, at present and for the past 22 years in ACTIVE TRADE, and which has always realised very large profits—ARE NOW OFFERING.

Bona fide investors only are invited to apply for interests therein. Adventitious investors, speculating with the object of receiving promotion money, will not be treated with.

Those only who desire to secure a permanent income on a moderate investment, need apply personally, or address by letter—

Mr. HALLAS, PUBLIC ACCOUNTANT, 32, FAULKNER STREET, MANCHESTER.

Who will furnish the fullest information, and to probable investors furnish letters of introduction to view the properties.

NORTH WALES.

THE PROPRIETOR of a FREEHOLD SLAB and FLAG QUARRY, which has been thoroughly proved for years, REQUIRES a PARTNER TO WORK IT MORE EXTENSIVELY.

Capital required, £400 to £500. A respectable partner would have entire control of cash and office work, whilst the proprietor is thoroughly experienced in the practical part of the work. If desirable, a limited company would be formed. Apply to Mr. G. JONES, 14, George street, Llanrwst, North Wales.

IRON ORE.

TO BE DISPOSED OF, BY PRIVATE TREATY, an extensive SETT of MINERAL GROUND IN NORTH DEVON. Hematite iron lodes are shown at several places, and being worked on the adjoining property. Address, Mr. ROBERT SMITH, Lee, near Ilfracombe, North Devon.

FINE OPPORTUNITY FOR MAKING A FORTUNE.

TO BE SOLD, PART OR ENTIRE (former preferred) of a COLLIERY ROYALTY, of about 170 acres, in NORTH WALES. The pit is sunk 40 yards deep to the seam containing the best description of Cannel. There are six other seams of good coal (the first being King Coal, only 14 yards under it) known to be beneath this seam. Its situation being half a mile from a railway station, and also admirably adapted for lead and sale, close to excellent roads, the working expenses, royalty, rent, and outlay make for a probable get in a few weeks of 400 tons daily at an almost fabulous profit, render the present undertaking one well worthy the immediate attention of capitalists, coal dealers, gas manufacturers, or colliery proprietors.

Address, "Q. E. D.," care of Mr. Watson, 15, Fenwick-street, Liverpool.

LEAD MINES IN THE COUNTIES OF DURHAM AND

NORTHUMBERLAND.

TO BE LET, ON LEASE, with immediate possession, the HUNSTANWORTH and NEWBIGIN ROYALTIES the former about 3534 acres and the latter 200 acres, or thereabouts.

The Hunstanworth Royalty adjoins the celebrated W.B. Lead Mines, and has for many years yielded large quantities of lead ore, and much of the ground is undeveloped.

For particulars, apply to JOSEPH DODDS, Esq., M.P., No. 4, Spring-gardens Charing-cross, London, S.W., and Stockton-on-Tees; or Mr. THOMAS J. BEWICK C.E., No. 4, Queen-square, London, S.W., and Haydon Bridge, Northumberland.

TO BE LET, A LARGE and IMPORTANT COAL FIELD in the neighbourhood of DONCASTER, in communication with two railways, through the medium of which access to the railway systems of the Great Northern, the Midland, and M. & L. Railways is completely afforded.

The estate, under which the coal is to be let comprises upwards of 2000 acres, and the reports of Geologists and Mining Engineers state that the celebrated Barnsley Seam of coal will be met with at a depth of from 600 to 600 yards.

To view the estate, and to obtain further particulars, apply to Mr. W. MARSH, of Bentley Old Hall, Doncaster; to Mr. J. T. WOODHOUSE, Mining Engineer, Derby; or to—

NEWMAN AND SONS, Solicitors, Barnsley.

TO CAPITALISTS.

LARGE BED OF ARGENTIFEROUS LEAD FOR SALE, in situ in one of the most accessible spots in ITALY, on the banks of LAKE MAJEURE. Great facilities during the year for working the mines near the railway, and with good carriage roads. All the mechanical preparation in working order. Water communication. Great metalliferous riches—several veins. Works on a large scale. Price £40,000.

Apply to A. MAURICE, 13, Tavistock-row, Covent-garden, for full particulars, and where samples can be seen.

MINING MACHINERY.

MESSRS. F. W. MICHELL AND CO. have FOR SALE several CORNISH PUMPING, STAMPING, and WINDING ENGINES, of different sizes; BOILERS from 6 to 12 tons each; PITWORK of all sizes; CORNISH CRUSHERS; STAMP AXLES; IRON PLAT-RODS; STRAPPING PLATES; and other MATERIALS in general use in Mines, &c.

EAST CARN BREA, REDRUTH, CORNWALL.

RAILS (IRON) FOR SALE.

NEW PERFECT FLANGE RAILS, 40, 60, 72, 74, and 7½ lbs. per yard; also, SLIGHTLY DEFECTIVE FLANGE RAILS, 40, 50, 72, and 74 lbs. per yard.

For particulars and prices apply to W. G. FOSSICK, 6, Laurence Pountney-hill, London.

BARYTES (SULPHATE OF), CRUDE OR GROUND,

FOR SALE.

Apply to FORCE CRAG LEAD AND BARYTES MINING COMPANY, 69, Close, Newcastle-on-Tyne.

FOR SALE (ready for delivery), a high-class 18-horse power PORTABLE STEAM ENGINE, with reversing gear, suitable for winding, pumping, &c.

Also, a 25-horse power, with or without PIT WINDING GEAR.

FOR SALE, SEVERAL SECONDHAND PORTABLES, with NEW MORTAR MILLS, 5 to 9-feet pans.

Also, combined VERTICAL ENGINES and MILLS for GRINDING SLAG SAND, &c.

BARROWS and STEWART, ENGINEERS, BANBURY.

TO BE SOLD.

BEAM ENGINE, 16½ inch cylinder, high pressure or condensing, in good working trim, with foundation stones, complete.

PORTABLE ENGINES, for SINKING, MINING, or GENERAL PURPOSES, from 10 to 30-horse power, IN STOCK, or in PROGRESS OF CONSTRUCTION.

Full particulars on application to—

BADGER AND SON,

ENGINEERS, ROTHERHAM.

70-inch CORNISH PUMPING ENGINE.

FOR SALE, a FIRST-CLASS 70-inch PUMPING ENGINE, 11 ft. stroke cylinder and 10 ft. in shaft, with 2-12 ton BOILERS.

Apply to F. W. MICHELL and Co., East Carn Brea, Redruth, Cornwall.

HORIZONTAL ENGINES, of most approved construction, from 8 to 60 in. cylinder, for WINDING AND GENERAL PURPOSES.

Some good secondhand HORIZONTAL ENGINES ON SALE, single and in pairs, from 14 inches to 20 inches cylinders, suitable for winding, &c. GOOD BOILERS of all sizes.

CREASE AND CO., 39, CONGREVE STREET, BIRMINGHAM.

SIX LECTURES ON MINERALOGY, adapted to a JUVENILE AUDIENCE, with a view to facilitate the STUDY OF GEOLOGY, will be given by J. THOMAS, F.G.S., Mineralogist to Her Majesty, &c., at his residence, 14, Strand, London, W.G., on Dec. 29, 31, 1873; and Jan. 2, 5, 7, 9, 1874, at Two P.M.

Terms—Half a guinea for the course; 6s. for children of Fellows of the following societies:—Geological, Zoological, Chemical, Microscopical, Geographical, Horticultural, Geologists' Association, and Society of Arts.

Works published at the MINING JOURNAL office, Fleet-street, London

NEW GUIDE TO THE IRON TRADE. By JAMES ROSE (reprinting). Price 8s. 6d.; by post, 8s.

THE MINERS' ASSOCIATION OF CORNWALL AND DEVONSHIRE—PAPERS ON PRACTICAL MINING. 1s.

JOINT STOCK COMPANIES, AND HOW TO FORM THEM. By THOMAS TAPPING. 1s.

TREATISE ON IRON METALLURGY. By S. B. ROGERS. £1 5s.

RISE AND PROGRESS OF MINING IN DEVONSHIRE. By G. CHOWEN. 1s.

SLATE QUARRIES AS AN INVESTMENT. By J.

LOCOMOTIVE TANK ENGINES

FOR MAIN LINE TRAFFIC, SHORT LINES, COLLIERIES CONTRACTORS, IRONWORKS, MANUFACTORIES, &c., from a superior specification, equal to their first-class Railway Engines, and specially adapted to sharp curves and heavy gradients, may always be had at a short notice from—

MESSRS. BLACK, HAWTHORN, AND CO.,
LOCOMOTIVE, MARINE, AND STATIONARY ENGINE WORKS,
GATESHEAD-ON-TYNE.

THE TAVISTOCK FOUNDRY, IRONWORKS,
AND HAMMER MILLS,
ESTABLISHED MORE THAN HALF A CENTURY,

have been purchased by
NICHOLLS, MATHEWS, AND CO.,
Who are in a position to MANUFACTURE ALL KINDS OF ENGINEERING
AND FOUNDRY WORK, SHOVELS, AND MINING TOOLS of every
description; and have had a large experience in preparing
MACHINERY FOR FOREIGN MINES,
As well as selecting mechanics to erect the same.

N., M., AND CO. have always a STOCK OF SECOND HAND MATERIALS.

WILTON'S MATHEMATICAL INSTRUMENT ESTABLISHMENT,
REMOVED from St. Day to A. JEFFERY'S, CAMBORNE.

W. H. WILTON begs to thank his friends for their liberal support for so many years, and informs them that (having opened business at Valparaiso) he has now declined business in England in favour solely of Mr. A. JEFFERY, MATHEMATICAL INSTRUMENT MAKER, CAMBORNE, whom he considers (having been an assistant to his father for several years) is in every way capable of creditably maintaining the good name universally awarded to Wilton's instruments.

A. JEFFERY

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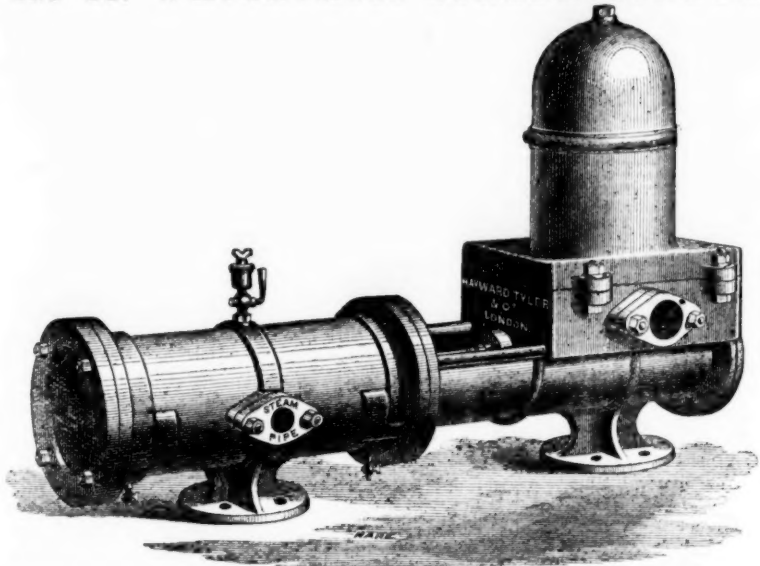
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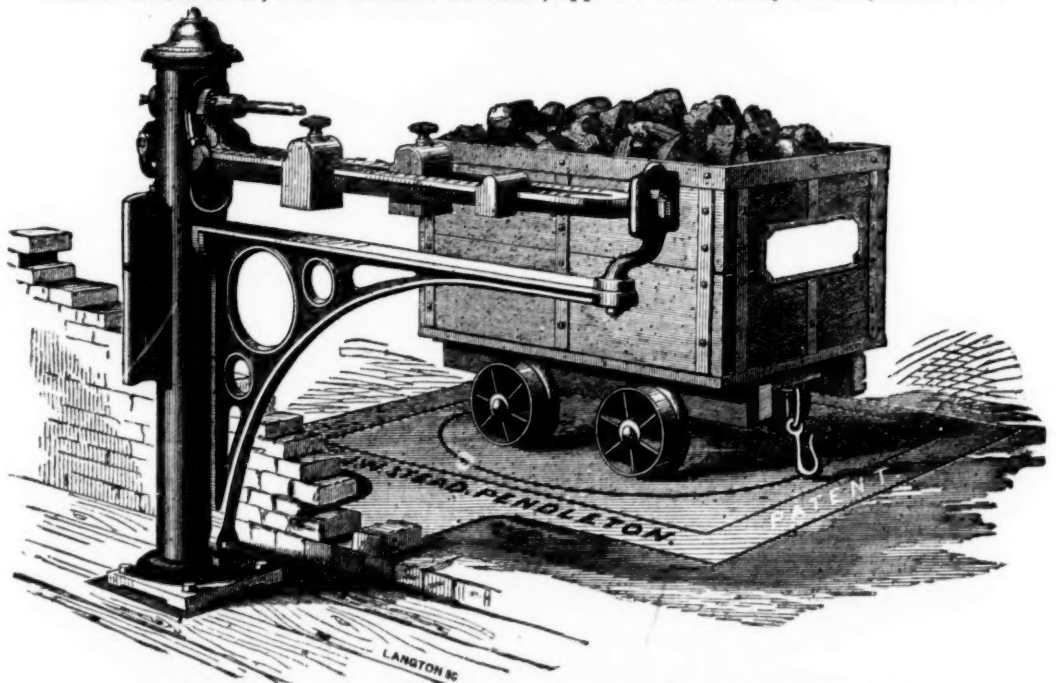
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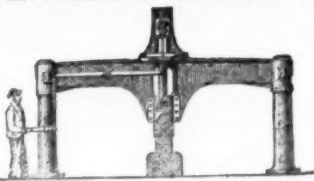
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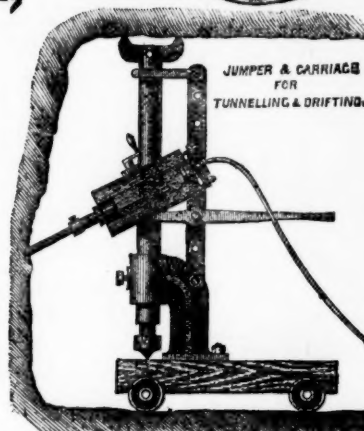
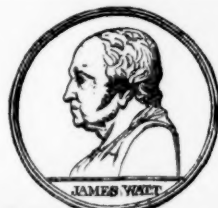
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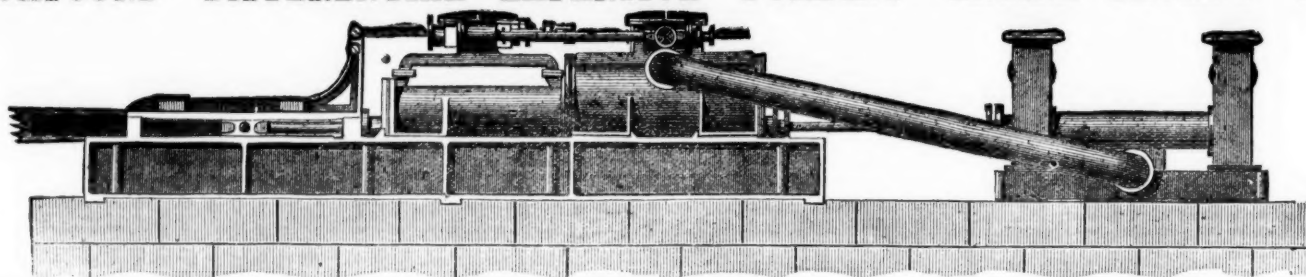
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1800	Alderley Edge, c. Cheshire*	10 0 0	11 16 8	0 5 0	Oct. 1873
30000	Ally-Cribb, c. Rylabont*	2 0 0	0 0 0	0 0 0	Feb. 1873
30000	Bampfylde, c. t. m., Devon*	1 0 0	...	...	0 2 0	0 2 0	June 1873
8500	Blanc Caen, c. Cardigan* (24 sh.)	3 10 0	...	...	0 10 9	...	...
18000	Boscawell Downs, c. St. Just*	3 0 0	...	...	0 5 0	0 5 0	Oct. 1871
200	Botallack, c. St. Just*	106 5 0	...	...	619 15 0	0 2 0	Aug. 1872
500	Brookfild, c. t. (23000 Deb. B. sp.)	100 0 0	...	...	110 0 0	0 2 0	Jan. 1872
4000	Brookwood, c. Buckfastleigh	1 16 0	...	...	2 14 6	0 6 0	Nov. 1872
3345	Cargill, c. t. Newlyn	4 16 11	1 1/2	1 1/2	4 16 3	0 12 0	Oct. 1872
6400	Cashwell, c. Cumberland*	2 10 0	...	...	1 4 0	0 4 0	Aug. 1872
7500	Castle-an-Dinas, c. St. Columb*	2 0 0	...	...	0 10 0	0 10 0	July 1873
1000	Carr Brea, c. t. Illogan*	35 0 0	...	...	307 0 0	0 1 0	Oct. 1873
6000	Cath & Jane, c. t. Penrynhyndraeth	5 0 0	...	...	0 7 6	0 7 6	June 1873
2450	Cook's Kitchen, c. Illogan*	19 14 9	...	...	11 17 0	0 7 6	Jan. 1873
10000	Devon Gt. Consols, c. Tavistock*	0 12 0	...	...	116 10 0	0 12 0	May 1872
4296	Dolcoath, c. t. Camborne	10 14 10	51	50 5/2	103 11 8	0 10 0	Oct. 1873
10000	East Baleswidden, c. Sancreed*	1 0 0	...	...	0 2 6	0 5 0	Nov. 1873
6144	East Caradon, c. St. Cleer*	2 14 6	...	...	14 19 0	0 2 0	Oct. 1872
800	East Darwen, c. Cardiganshire	32 0 0	...	...	216 10 0	0 1 0	Sept. 1873
6400	East Pool, c. t. Illogan*	0 9 9	...	...	13 11 3	0 2 6	May 1873
5000	Exmouth, c. t. Christow	0 7 6	...	...	0 1 0	0 1 0	May 1873
2800	Foxdale, c. t. Isle of Man*	25 0 0	...	...	80 15 0	0 13 0	Sept. 1872
3950	Gawton, c. Tavistock	3 10 6	...	...	0 13 0	0 5 0	May 1872
40000	Great West Van, c. (30,000 £1 p., 10,000 15s. p.)	2 0 0	...	...	0 4 10	0 1 0	Sept. 1873
15000	Great Laxey, c. t. Isle of Man*	4 0 0	13 1/2	13 1/4	16 11 0	0 10 0	Oct. 1873
25000	Great West Van, c. Cardigan*	2 0 0	...	...	0 1 0	0 1 0	Sept. 1873
5908	Great Wheel Vor, c. t. Helston	40 5 0	...	...	15 19 6	0 2 6	June 1872
6400	Green Heath, c. t. Durham*	0 8 0	...	...	1 4 0	0 4 0	Nov. 1873
1024	Herodfoot, c. near Liskeard*	8 10 0	...	...	62 5 0	0 13 0	Oct. 1872
18000	Hingston Downs, c. Calstock* (£1 sh.)	...	...	...	4 3 0	0 5 0	Dec. 1872
25000	Killalee, c. Tipperary	1 0 0	...	...	0 3 11 1/2	0 6 0	Mar. 1873
14000	Lisburne, c. Cardiganshire	18 15 0	...	...	659 10 0	0 1 0	Sept. 1873
5120	Lovell, c. Wendron	0 10 0	...	...	0 16 0	0 4 0	Aug. 1873
9000	Minera Mining Co. l. Wrexham*	5 0 0	...	...	63 5 8	0 4 0	Oct. 1873
20000	Mining Co. of Ireland, c. t. l.	7 0 0	...	...	0 8 0	0 3 0	July 1872
12000	North Hendre, c. Wales	10 17 0	...	...	4 13 0	0 12 0	Sept. 1873
2000	North Levant, c. St. Just	2 0 0	...	...	0 5 0	0 5 0	Nov. 1871
2694	Pen-y-dra, c. Redruth	8 2 0	...	...	3 1 0	0 2 6	Oct. 1873
8000	Penrhall, c. St. Agnes	3 0 0	...	...	0 1 0	0 1 0	Nov. 1873
50000	Penrhyall, c. t. Gwennap	2 0 0	...	...	39 10 0	0 4 0	Nov. 1872
6000	Phoenix, c. t. Linkinhorne	4 3 4	...	...	1 12 6	0 5 0	Mar. 1872
1772	Porter, c. St. Agnes	15 0 0	...	...	0 3 0	0 2 0	June 1873
18000	Prince Patrick, c. t. Holywell	1 0 0	...	...	104 12 6	0 10 0	Oct. 1872
1120	Providence, c. t. Uny Lelant*	12 6 7	...	...	0 1 0	0 1 0	Sept. 1872
12000	Roman Gravel, c. t. Salop*	7 10 0	...	...	0 1 0	0 1 0	Sept. 1872
10000	Shelton, c. t. St. Austell	1 0 0	...	...	0 1 0	0 1 0	Sept. 1872
4000	Slimeford Dressing, c. Calstock*	1 0 0	...	...	0 1 0	0 1 0	Sept. 1872
512	South Caradon, c. St. Cleer	1 5 0	...	...	711 0 0	0 2 0	Nov. 1872
5000	South Carn Brea, c. t. Illogan*	1 17 6	...	...	0 10 0	0 2 6	July 1872
6000	South Darwen, c. Cardigan*	3 6 6	...	...	1 1 6	0 1 6	Nov. 1872
242	Spearhead, c. St. Just	38 17 9	...	...	17 5 0	0 10 0	June 1872
8771	St. Just Amalgamated, c. t.	3 10 0	...	...	0 9 0	0 4 0	Nov. 1871
12000	Tankerville, c. Salop	6 0 0	...	...	0 3 0	0 1 0	Oct. 1872
25000	Terras, c. St. Austell	9 0 0	...	...	0 3 0	0 1 0	Oct. 1872
4000	Tinroo, c. t. Pool, Illogan*	9 0 0	...	...	45 3 6	0 10 0	Oct. 1872
4000	Trumpet Consols, c. Helston	5 15 0	...	...	9 11 0	0 10 0	Nov. 1872
15000	Van, c. Llanidloes*	4 5 0	...	...	11 2 0	0 15 0	Oct. 1873
9000	W. Chiverton, c. t. Perranzabuloe	10 0 0	...	...	52 10 0	0 5 0	June 1873
2048	West Wheal Frances, c. Illogan	27 3 9	...	...	3 12 6	0 5 0	Oct. 1872
512	Wheal Bassett, c. Illogan*	5 2 6	...	...	638 10 0	0 10 0	Aug. 1872
4296	Wheal Kitty, c. St. Agnes	5 4 6	...	...	11 1 6	0 5 0	Nov. 1873
596	Wheal Margaret, c. t. Uny Lelant*	13 17 6	...	...	0 1 0	0 1 0	Jan. 1873
10000	Wheal Mary, c. t. St. Dennis*	5 0 0	...	...	0 1 0	0 1 0	Jan. 1873
1024	Wheal Mary Ann, c. t. Menheniot*	10 0 0	...	...	74 5 6	0 2 6	Aug. 1873
80	Wheal Owles, c. St. Just	70 0 0	...	...	522 10 0	0 4 0	Aug. 1872
12000	Wheal Russell, c. Tavistock	1 0 0	...	...	0 2 0	0 1 0	June 1871
1356	Wheal Seton, c. t. Camborne	73 0 0	...	...	256 5 0	0 10 0	Oct. 1873
15000	Wheal Tregoss, c. t. Roche	1 0 0	...	...	0 1 0	0 1 0	Jan. 1873
10000	Wheal Whistler, c. t. Warleggan*	1 0 0	...	...	0 1 0	0 1 0	May 1873
35000	Wicklow, c. s.w. l. Wicklow	2 10 0	...	...	52 9 0	0 2 6	Mar. 1872

FOREIGN DIVIDEND MINES.

Shares.	Mines.	Paid.	Last Pr.	Clos. Fr.	Total divs.	Per share.	Last paid
355000	Alamillos, l. Spain*	2 0 0	...	...	1 1 9	0 2 6	Mar. 1873
300000	Almaden, c. t. Spain*	1 0 0	...	...	0 4 6	0 1 0	May 1873
20000	Australan, c. South Australia*	7 7 6	...	...	0 11 6	0 2 0	July 1873
10000	Battle Mountain, c. (2540 part pd.)	5 0 0	...	...	0 10 0	0 10 0	Nov. 1872
15000	Birdseye Creek, c. California*	4 0 0	...	...	0 9 0	0 2 0	July 1873
6000	Bunsberg, l. Germany*	10 0 0	...	...	0 17 4	0 8 0	July 1873
12320	Burra Burra, c. So. Australia	8 0 0	...	...	56 0 0	0 10 0	Oct. 1872
20000	Cape Copper Mining, c. So. Africa	7 0 0	...	...	14 15 0	0 1 0	Dec. 1872
40000	Cedar Creek, c. California*	5 0 0	...	...	0 5 0	0 2 0	June 1873
30000	Central American Association*	0 15 0	...	...	0 16 0	0 1 0	Oct. 1872
1500	Chicago, c. t. Illinois*	5 0 0	...	...	0 16 0	0 1 0	Oct. 1872
21000	Colorado Terrible, c. Colorado*	5 0 0	...	...	0 8 0	0 2 0	Oct. 1871
75120	Don Pedro North del Rey*	0 16 0	...	...	2 5 0	0 2 0	Mar. 1872
35000	Eberhardt and Aurora, c. Nevada*	10 0 0	...	...	0 1 0	0 1 0	July 1871
2552	Eldorado, c. Nova Scotia*	10 0 0	...	...	3 5 0	0 15 0	June 1873
60000	Emma, c. g. t. Utah (25,000 fully pd.)	20 0 0	...	...	3 12 0	0 6 0	Dec. 1872
70000	English and Australian, c. t. Aust.	2 10 0	...	...	2 7 3	0 3 0	Mar. 1872
15000	Ferguson, c. California*	2 0 0	...	...	0 3 0	0 3 0	Apr. 1872
30000	Flagstaff, c. Utah*	10 0 0	...	...	4 2 0	0 5 0	Oct. 1873
20000	Fortuna, l. Spain*	1 0 0	...	...	3 19 4	0 5 0	Oct. 1872
20000	Gold Run, c. California*	1 0 0	...	...	0 2 4	0 4 0	Oct. 1872
65000	Kapunda Mining Co. Australia*	1 3 0	...	...	0 2 4	0 6 0	June 1873
20000	Last Chance, c. t. Utah	5 0 0	...	...	0 14 0	0 1 6	Mar. 1873
15000	Linares, l. Spain*	3 0 0	...	...	0 5 0	0 5 0	Dec. 1872
7837	Lusitanian, Portugal* (£5 shares)	3 0 0	...	...	0 4 0	0 4 0	Jan. 1873
15000	Mammoth Copperopolis of Utah, c. t.	10 0 0	...	...	0 4 0	0 4 0	Jan. 1873
5000	Mountain Chief, c. t. Utah*	10					